Computer Weekly

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# Export boss quits over bureaucracy

by John Kavanagh

THE head of the government scheme to export UK information technology has quit because of "bureaucratic meandering". Doug Moore, director of Export IT, says he has "serious doubts whether the government is genuinely interested in exporting information technology products".

He has also accused the Computing Services Association — one of the original sponsors of ExportIT — of trying to muscle in to become the only export co-ordinator.

Moore's outburst comes in a resignation letter to members from ExportIT's annual general meeting this month.

He says the government's hesitation over funding stems partly from CSA opposition to ExportIT.

Quoting GEC chairman Lord Weinstock, Moore says: "Although governments and trade associations cannot themselves create business they can certainly frustrate its generation."

The CSA started its own export drive following the appointment of Roger Graham of software house BIS to a top post in the European CSA.

But Doug Eyeions, director general of the UK CSA, denied that there was any dispute with ExportIT.

"We're not muscling in on them at all," he said. "The whole future of exporting information technology is under discussion and like everyone else, we're unhappy that it's taking so long."

Moore said: "People must recognise how much more can be achieved by working together, particularly when there is no concern about who is to receive the credit. Until they do the limited management resources will continue to be frittered away in bureaucratic discussions to the benefit of our international competitors." Moore says he is not standing for re-election, "to make public the situation that the staff of ExportIT have been living with for more than 12 months".

ExportIT was formed at the end of 1981 with £248,000 from the government to see it through 1982. It has made this money last an extra year "through gross parsimony, good housekeeping, registration fees and organising events". In 1983 the staff has been cut by half to three project managers. Moore has worked unpaid.

ExportIT has 150 members and many more companies interested in its activities. It has organised visits by UK firms to exhibitions in the Far East, the Middle East and the US. In its first year it claims to have brought UK firms export contacts representing over £10 million worth of business.

MOORE . . . Bureaucratic meandering".

# £9m Ada and Chill language project hangs in balance

by George Black

A BID to save the £9 million government-backed Ada and Chill language research scheme hangs in the balance this week.

The backers, the Defence Ministry and British Telecom, wanted a fixed-price contract, but the developers, led by ICL, insisted on a cost-plus arrangement.

The Ada Group consortium blamed BT for a "precipitate withdrawal" from the scheme last month, but is now talking to the Defence Ministry to try to revive it.

Brian Gladman, head of the communications and computing group at RSRE Malvern, said they hoped to go ahead with a revised scheme to establish a portable Ada compiler technology.

The aim would be to arrive at a first generation project support environment by the end of 1985, which could then be integrated into the Alvey Programme, the national fifth generation undertaking.

The Ministry is negotiating with BT about splitting the Ada and Chill elements, after the collapse of the original contract. The MoD interest lies in maintaining the Ada part of the scheme for its real time applications in NATO, not with Chill, which is a telecommunications tool. BT, however, said it still believed in a joint development of the two languages. A spokesman added that they were "looking at other ways" of getting the work done without ICL and its partners.

Ada Group managing director Martin Jordan said they only had until the end of the year in which to find the money. Then his remaining team of 35 would be split up and the designers would have to go back to their previous employers. Fifteen have already been laid off.

Jordan said if the scheme folded up it would be "a desperate waste of a vital piece of technology".

He spoke bitterly of the government "pumping millions into Inmos, but unwilling to spend a relatively small amount on software.

"We have solved problems that the Americans have been struggling with, because we have avoided making their mistakes," he said.

# Hardware thieves 'will come unstuck'

by John Riley

THIEVES raided London-based RC Computers at the weekend and got away with four business computer systems worth at least £20,000.

The company was to use the systems in a training school for users scheduled to get underway in January.

The haul comprises three ITT 3290 intelligent terminals and one RC 855 multifunction workstation, with disc drives and Facit Addo 4510 matrix printers.

But if the raiders think they will sell them off quickly to the home computer market they will be disappointed, says John Mumford, managing director of RC Computers, a subsidiary of the Danish company Regnecentralen.

"They got the hardware, but didn't take the special cables which make the printers work with the terminals," he said. "They didn't get any configured software either."

"The equipment is of use only to those with a significant IBM presence as our communications are entirely with the IBM world. I could have understood it if they'd swiped a bunch of Apples or a set of PCs, but they'll come unstuck with these."

RC Computers, which was set up in the City in 1979, sells its own RC 855 workstations and configures and supplies software to ITT houses.

"The theft has been pointless," added Mumford. "People in the business world want to know who they're buying equipment from, and want the maintenance and software support that goes with a sale. It was a waste of time for the thieves because as soon as they realise they can't sell the systems, they'll dump them. Whatever happens, we've got a hell of a problem trying to get replacement systems by January."

## BP switches to IBM mainframe

ONE of the UK's biggest ICL users, BP, will buy an IBM 3083 instead of an ICL Atlas for its London-based international marketing operation. BP uses a variety of hardware, but invested heavily in ICL's 2900 series mainframes.

ICL has sold only two of its IBM-compatible Atlases, made by Fujitsu in Japan, since May 1982. It had hoped to sell 18 by now.

## No ITV micro

ITV will not be endorsing one particular micro to go with TV programmes made by the ITV companies. But individual companies will continue to develop a range of TV programmes aimed at computer users in small businesses, education and the home. Monday's decision not to promote an ITV micro was made because doing so might affect advertising from other micro manufacturers.

## Swiss role

SWISSAIR has moved into computer retailing by opening a shop in Zurich. The company expects to win a "considerable" share of the tiny Swiss market by selling IBM, Apple and Hewlett-Packard microcomputers, plus calculators. Forecasts put the entire domestic and business market at just 75,000 machines in the next three years.

## Combined issue

TODAY'S issue of *Computer Weekly* is the last until the New Year. It combines the issues of December 15 and 22; the issue of December 29 is dropped. We wish all our readers a happy Christmas and a prosperous New Year. *Computer Weekly* will be back on January 5. This issue has suffered from production difficulties.

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# IBM livens up teller machine market

by John Kavanagh

THE automated teller machine business was shaken up by announcements from two market leaders, NCR and IBM, last week. And the news knocked $10 off the shares of a third major supplier, Diebold.

In the US, IBM announced a machine which can read cheques and issue coins as well as notes – but NCR said there was little demand for change issuing and the trend was towards notes of higher values.

Meanwhile NCR unveiled a machine based on its new 5080 but aimed at building societies. The machine can be programmed in Pascal.

The IBM 4730 can issue three types of coin and five denominations of banknote. If it runs out of the denomination requested it issues the next lowest.

Cash deposits can be made in envelopes. The machine can print information such as time and date on the envelope. It can also scan the machine-readable characters on cheques and accept deposits that way. In addition it can be used as a cheque-cashing machine: reliable customers can be allowed to feed in cheques and get cash in return. This is thought to be particularly interesting to the US, where people are paid by cheque rather than by credit transfer directly to their accounts.

IBM said the cash-issuing feature could be helpful for retailers looking for change.

But NCR disagreed. "It would be possible to adapt our 5080 to issue coins but we feel from our talks with users that no one wants this," the company said.

NCR emphasises both the Pascal programming and ink-jet deposit envelope printing on its new machine. Building societies manager Mike Nott said the unit could be programmed to print anything. Building societies were considering a joint auto-teller machine network; they could get their machines to print the name of the relevant society on the envelopes, for example.

The NCR 5080 offers a graphics display and voice output. NCR claims to be the market leader, with over 17,500 machines installed worldwide.

ROGERS ... "Crazy system."

# 'Crazy' education under fire again

by John Kavanagh

A NEW attack on national policy on electronics and computing education has been launched by one of the top directors at Plessey. Group personnel director Parry Rogers is looking overseas for hardware and software engineers because of a "crazy education system" which does little to attract physics and mathematics graduates and teachers.

Rogers' comments come at the end of a year in which education policy has been attacked by other top industry figures, including ICL managing director Robb Wilmot and Hewlett-Packard's UK managing director, David Baldwin.

In addition, the Institute of Manpower Studies has warned that cuts in government support for degrees in technology subjects could pose critical problems as soon as the economy recovers.

Plessey is looking for 100 specialists in the wake of recent big orders for defence systems. It is advertising in Australia, New Zealand, Canada and Europe, after failing to find people in the UK.

"Not enough of the best people are sticking with maths and physics even as early as the O-level stage," Rogers said. "The children tend to follow the best teachers – and not enough of the best maths and physics graduates go into teaching, because of the pay.

"Our industrial future depends on technology, but our crazy education system prevents us paying more to a maths teacher than to a Greek or geography specialist.

"They should be paid more: market forces should prevail, as in industry."

Rogers said Plessey would like to see more university resources spent on electronic engineering.

He added: "The universities are producing large numbers of graduates who find it difficult to get jobs, yet there's a huge shortage of the skills we need."

He warned that things could get worse. The number of 18-year-olds was expected to fall from 800,000 to 600,000 in the next decade, so if the proportion of electronics graduates stayed the same, the shortages would become even more acute.

Plessey is advertising in Australia and New Zealand in particular, because there are skill surpluses there, and graduates are keen to get experience in the UK.

# Engineers go back at Post Office

ABOUT 1,400 telephone engineers went back to work in three international exchanges on Monday. They are members of the Post Office Engineering Union who were locked out two months ago following a work-to-rule in protest against the government's plans to privatise BT.

Bryan Harper, POEU assistant secretary, said the union would still be carrying on its campaign against privatisation and would consider further industrial action.

## Research centre

ICL, Bull and Siemens have formally founded their new joint research centre in Munich, to be called the European Computer Industry Research Centre. Each company has an equal share capital of £150,000. The Centre hopes to tap the £840 million Esprit programme for cash.

## Viewdata first

TRIUMPH-ADLER aims to be the first major European computer manufacturer to use viewdata to keep in touch with its dealer network. Information such as price changes, software updates and new product news that was previously sent by post to the 160 dealers will soon be available from T-A's closed user group pages on Prestel.

## Prestel success

DOMESTIC use of the Prestel viewdata service has almost quadrupled in the last year. The number of sets has risen from 3,100 to 11,100. Over 35,000 sets are installed.

## Legal service

AN online legal information service has been launched by Eurolex using the Datasolve bureau. It enables legal people to keep up to date with important cases and new laws through microcomputer links instead of having to wade through 60 professional journals. Services covering EEC and Irish law will be added next year.

## Commons speech

EVERY word spoken in the Commons is now available through terminals from Scicon's Polis parliamentary information service. The full text of Hansard, the official record of Commons proceedings, is entered to Polis the same night. An index helps users find the relevant Hansard reference.

## Joint satellite

NASA and Canada's Department of Communications are to develop a joint commercial satellite service for voice and data communications to mobile terminals operating in rural areas of North America. Tenders for telecommunications carriers to collaborate in the scheme will be issued early in 1984.

# Telecoms Bill for Lords

by our Parliamentary Correspondent

THE government hopes today to complete the Third Reading of the Telecommunications Bill, so that the Lords can have it by Christmas. But as the Commons winds down for the holidays, the only other business relating to the computer industry is the House Buyers Bill, which comes up for its Second Reading tomorrow.

Sponsors of the Bill, which aims to end the solicitors' monopoly in conveyancing, claim that it would help speed up and make cheaper the buying and selling of houses by encouraging much greater use of computers.

# Corfield calls for mobile management elite in UK

by Donald Kennett

A MOBILE elite of management, able to serve both the public and private sectors, and a government-backed insurance scheme for new technology contracts, were two measures proposed last week to boost UK performance in world markets.

The proposals were made at the final conference in the UK World Communications Year programme, by Standard Telephones & Cables chairman Sir Kenneth Corfield.

Corfield's call for a management elite echoes the aims of the three-year-old Matsushita School of Government and Management in Japan, which was set up with £14 million of Konosuke Matsushita's personal fortune to train people to influence society, first in Japan but later over the whole world.

Corfield highlighted Japan as the most successful of the UK's competitors at reconciling its social and industrial objectives, creating an international culture in its companies and teaming industry with government and bankers to offer attractive contract packages.

"While in the UK we act as if social and industrial objectives were in competition with each other, our competitors, notably the Japanese, see them as mutually supportive," he said.

On international marketing he said: 'Management is insufficiently aware of overseas markets and, more particularly, of how the design, engineering, manufacture and selling disciplines have to be integrated if overseas markets are to be taken.

"The lead has to come from the top, and for this we need to consider how to generate in Britain a mobile elite of management for the public and private sectors."

CORFIELD ... "The lead has to come from the top."

The virtual impossibility of getting insurance for large projects using unproven technology was a major factor in preventing UK firms from exploiting their innovations, Corfield said.

His own company, STC, had missed out on the opportunity to supply the bulk of the first transatlantic optical fibre cable, despite having bid with technology and price as good as the best, he said, because Western Electric had been able to offer a 10-year guarantee on its system.

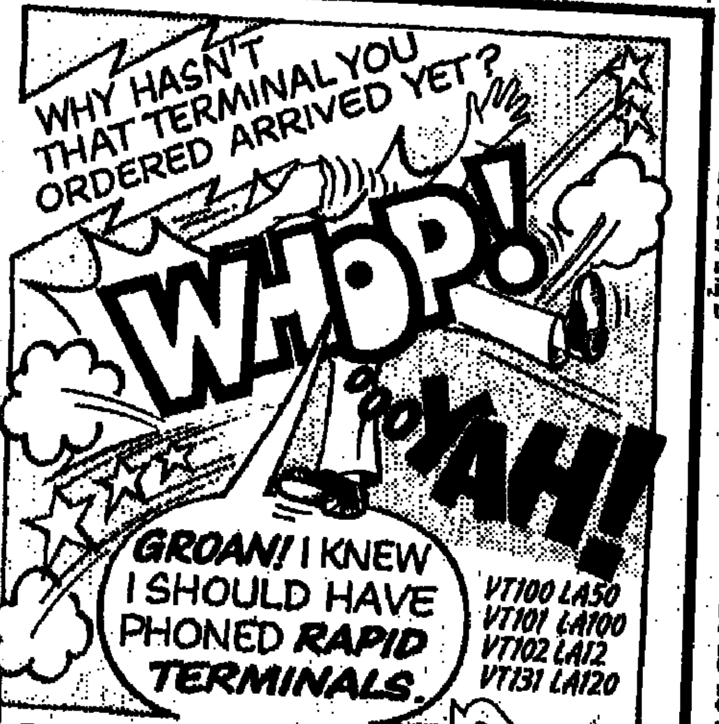
The best commercial insurance quotation he had been able to get was a five-year guarantee for a premium of half the contract price.

The Department of Trade and Industry had been sympathetic, but the Treasury had said no because it would set a precedent.

In a speech that was critical of both government and industry, Corfield identified protectionism, introversion and the inhibition about risk-taking, with inadequate financing and insurance mechanisms, as key factors in limiting UK performance in world markets.

The remedies he proposed were to resuscitate national planning processes, to introduce commercial disciplines into government spending and to revamp the country's education and training system.

Government spending on research should be confined to fundamental pre-competitive research, which companies could collaborate in, and to the maintenance of standards, he said.



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Inquiries: 01-661 8642/8641
Editor David Craver 01-661 3122
Deputy Editor Ron Coates 01-661 3124
News and Micro Editor Robert Parry 01-661 3044
Features Editor Andrew Thomas 01-661 3422
Financial Editor Dave Madden 01-661 3041
Software Editor George Black 01-661 3423
Reporters Caroline Burgess, Keith Holder, Philip Hunter, Donald Kennett, Nuala Moran, John Riley 01-661 3062, 01-661 3437, 01-661 3061, 01-661 3849, 01-661 3042, 01-661 3060
Chief Sub-Editor Chris Thornton 01-661 3447
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Manchester: Grove House, Skerton Road, Manchester M16 0WL. 061-872 8861
New York: 205 East 42nd Street, New York, NY 10017. (0101-212) 867 2080

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# Sinclair sees high tech 'wall of secrecy'

SINCLAIR ... "Wall of secrecy" for research.

by George Black

THE era of free trade between nations in technology is ending, and soon all research will be conducted behind a wall of secrecy.

This was the harsh warning of Sir Clive Sinclair, urging the Alvey Programme directors to aim for self-sufficiency in VLSI chip-making.

He told a British Computer Society meeting at Slough Higher Education College that the Japanese and the Americans would close their doors to international customers when the battle for computer supremacy reached its climax.

Alvey Programme VLSI director Bill Fawcett also referred to the dangers of dependence on imports, but he said that the UK could take only a selective approach to supporting an infrastructure of its own.

It would not be possible to apply the policy "across the board".

Sinclair said that VLSI brought a fundamentally different situation to the first four generations of computers. British manufacturers could no longer buy components and bolt them together.

Foreign competitors would not allow us to do so; hardware and software were now too intimately related to ignore either; and reliance on others was geographically impractical.

The view that Britain would be best to devote itself to software was a fallacy, said Sinclair, because if we did not develop hardware we would not develop software either. Processing and memory were becoming blended, so that sophisticated CAD systems under our own control were essential.

"Either we get ourselves back into the hardware business or we're out of the game," he said.

Japan was willing to supply components while it was building up an industry, but when it gained an advantage – as it was now doing – supplies would be directed "first to its own producers and secondly, if at all, to outsiders.

"Japan sees computers as the single most important industry – it will soon be bigger than the car industry – and is absolutely determined to outstrip the US and lead the world," he warned.

The Americans had been open and generous in supplying technology in the past, but now they too were starting "insular and secretive research programmes".

Fawcett gave the targets as 1.5 micron circuits within two years and 1 micron circuits within five. Much of the equipment needed to achieve those goals was not made in this country, he admitted.

We needed to move from wet to dry etching, and this was one area in which we needed to have our own infrastructure, he said. Talks were going on with the Trade and Industry Department to try to form a strategy for safeguarding access to the basic resources.

Responding to a question from the floor, Sir Clive again stressed "very serious implications" if Inmos was allowed to be bought by an American organisation.

ICL mainframe applications manager John Allamby said his firm was also worried about possible US embargoes and whether the "shutters could be put up" on its relationship with Fujitsu.

# ICL loses over 60 staff in plant closure

by Dave Madden

ICL has lost over 60 technical staff because of its decision to close its software development centre at Dalkeith, near Edinburgh. The defections could compromise ICL's plans for the Perq workstation.

When the plant was shut last Friday, of the 77 employees offered jobs at ICL's research centre at Kidsgrove only nine had agreed to make the move. Another four will go to Staffordshire on a temporary basis, and seven graduates recruited for Dalkeith will start work in Kidsgrove. The rest have accepted ICL's redundancy terms and will stay in Scotland.

An ICL spokesman said: "This will have a considerable effect on the Perq project in the short term – obviously not as many people have moved as we would have liked, despite considerable inducement to do so, though a nucleus of experienced staff has agreed to go."

The company has already begun a recruitment programme to fill the gaps, but it envisages "a staff shortage for six months or so".

When ICL announced in September its decision to concentrate its Perq efforts in Kidsgrove, the company presented the move as proof of its commitment to the machine. But the loss of its Perq software development team is a severe blow to a product that ICL admits has proved a disappointment.

ICL said that the market for such scientific workstations had not developed as the company had envisaged – in conjunction with Perq Systems in the US it has sold around 1,000 machines.

ICL revealed recently that it had moved to protect its interest in Perq by putting £2 million into Perq Systems for preference shares convertible into a 16% stake in the company. ICL may try to shift development work to Perq Systems until its Kidsgrove team is up to strength.

The bright side is that, according to one ex-Dalkeith employee, "the staff have almost uniformly found fresh employment".

Among beneficiaries is Future Technology Systems. A spokesman commented: "We have taken a few people from Dalkeith. ICL has tried to move scientific and technical staff from Scotland before and failed – and it had no reason to think this time would be any different."

On Monday the first Dalkeith spin-off, Spider Systems, opened for business in Edinburgh. The company has been formed by five senior managers and, although its plans are understandably vague, it intends to develop hardware and software products on a subcontracted basis.

According to Dr Peter Palmer, who was previously responsible for all ICL's system software development for Perq at Dalkeith, his new company will concentrate on Unix systems software, including the PNX version of Unix for Perq, and local area networking – hence the name, Spider Systems.

Palmer said: "Spider Systems has the best people from ICL Dalkeith – we have a very strong team."

# DEC wins second round in piracy case

by John Kavanagh

US leader Digital Equipment seems to have won the second round of its multi-million software piracy case against UK systems house Darkcrest.

At a procedural hearing last week Darkcrest was ordered to provide further and better details of its defence and £10 million counterclaim – and was told it would have to pay most of the costs of the last two hearings.

Earlier this year, Darkcrest failed to force DEC to prove its allegations. Instead, the judge granted an order restraining the UK firm from infringing DEC's software copyright and passing itself off as a DEC OEM.

Last week, Darkcrest was told it would have to pay all the costs of the hearing and 75% of the costs of a hearing in October. The company has to provide security for costs totalling £26,000 in 28 days.

Darkcrest still insists it has not pirated DEC software. "Where we have DEC software it is licensed to us," said managing director Nick Brackenbury.

"If our clients have software it is usually licensed to them by DEC. We've always stuck to our contracts with our suppliers – perhaps it's those suppliers which are breaking contracts with DEC."

Brackenbury accused DEC of spinning the case out to wear Darkcrest down. "We're suffering because we're regarded as guilty until proved innocent," he said. "But we can't prove ourselves innocent until the case gets to court."

He added: "We won't give in. We'll go to court and prove DEC wrong."

From the beginning of this case in the summer of 1982, Darkcrest has claimed DEC's action stems from business considerations rather than piracy fears.

DEC denies this. Its software licence contracts state that a systems house can make one copy of a software product to pass to one customer. The company estimates that piracy costs it £10 million a year in the UK alone.

BRACKENBURY ... No pirates.

## Case settled

MICROCOMPUTER firm Commodore has settled out of court with a UK chip designer who sold a software pirating device – by offering him freelance work. And the man, Peter Goss, wants to use the offer to help overcome the lack of good educational software.

Commodore has also won a High Court injunction preventing Goss from making his Softswitch or any other copying device.

While accepting the settlement, Goss argued that he was not a software pirate; the pirating was by users who bought his device.

The Softswitch enables users to copy Commodore software from read-only memory cartridges to cassette tape.

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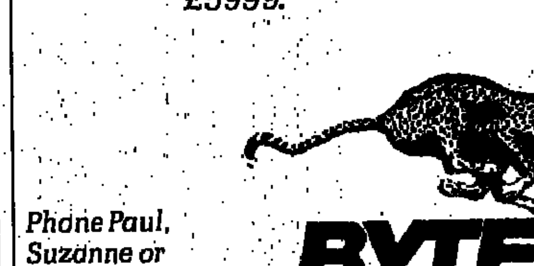

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CENTRONICS

# Critics slay 'millstone' Data Bill

by Nuala Moran

CRITICS of the Data Protection Bill who have warned that it will not do enough to protect the rights of individuals were told last week that it is impossible to protect rights without affecting commercial interests.

"Every protection for a data subject is an impediment to a data user, so it is very important to get the right balance," David Chesterton, head of the Home Office data protection division told a conference on data protection at Leicester University last week.

"Any Data Protection Bill must be a collection of balances and compromise, and the government makes no apologies in this respect."

CLUFF . . . "Worst of all worlds".

Chesterton added that manually held records are excluded from the Bill because "it is the capability of computers which, in the government's view, leads to the level of public concern."

Labour MP Michael Meacher disagreed with this. "There is an equal if not greater threat from manual records," he said. "All other countries apart from Denmark regulate manual records, and excluding them would lead to a disincentive to automate records," he said.

Ted Cluff, secretary general of the Institute of Data Processing Management said: "The government is only concerned with the protection of trade. The difficulty lies with the fact that the Home Office is trying to convince us that the Data Protection Bill does something to protect privacy.

According to Cluff no one sees the threat to privacy coming from private sector or local government computers. "What concerns people is the computer files of central government."

Exemptions to a data subject's right of access to information held on them under the Bill mean that many central government computer files will not be registered.

Cluff added: "What the government is proposing is the worst of all worlds. It deals quite ineffectively with privacy, and as far as the business community is concerned, it will be a millstone round their necks."

VAN ROSENDAAL . . . "We need to sort out a common set of the rules of the game".

# Monthly payments 'will make Esprit operation difficult'

by John Riley

THE collapse of the European summit in Athens came as no surprise to the Community officials setting up the £840 million Esprit European R&D programme.

The officials are acting on the assumption that the budgetary crisis will eventually be sorted out, and last week advertised for officials to administer the programme.

"We're used to this sort of situation in the European Community," said a senior official last week. "We run into a stone wall from time to time." He expects the European Parliament to reject the budget this week as a direct result of the summit, which will place Community funds for 1984 in a state of limbo.

In that case, the Commission will receive one-twelfth of the 1983 budget each month – and have to make do with that. In the short term this will not affect the Esprit programme, as officials are currently drawing up tender documents. But "the situation makes the Esprit operation more difficult and removes long-term guarantees."

European officials expect a mini-summit to sort out the crisis before the next scheduled summit meeting next March in Brussels.

While the Brussels-oriented Esprit programme is geared towards the long-term supply of information technology, two new Luxembourg-based programmes focused on the long-term use of information technology in Europe, are beginning to get off the ground.

The first of these, the Specialist Information Market Development Programme, was proposed recently.

Cornelis Janssen van Rosendaal, the Commission's head of information management, expects that by the end of 1984 there will be up to 65 projects under the Programme.

Approval for the full four-year programme is expected by Easter.

The Information Policy Development Programme, which has no cash sum on it at present, will provide a forum for addressing topics such as satellite TV, telecommunications policy, and transborder data flow. "It is not concerned with the industrial side, but how IT affects the user," explained Janssen van Rosendaal. "We need to sort out a common set of rules of the game."

## SALES BRIEF

### £1.5m Canada orders go to Graffcom

UK software house Graffcom Systems has won two export orders from Canada expected to be worth £1.5 million over the next three years. The two contracts, with Xerox Canada and micro dealer Data Crown, involve the WP 2020 word processing package for eight and 16-bit microcomputers running the CP/M operating system.

Xerox will offer the software to buyers of its microcomputer, while Data Crown will sell it with several makes of micro, including the IBM PC, DEC Rainbow and NCR Decision Mate.

### Air control

CALCOMP of California has won a $500,000 contract from Eurocontrol, the Belgian-based European Organisation for the Safety of Air Navigation. The firm will install an air traffic control simulator at Eurocontrol's Institute in Luxembourg for training staff.

### Chasing the bills

TWO Western newspapers have spent £55,000 with GCS Communications to help identify advertisers who do not pay their bills. The computer system is an extension of an existing set-up for controlling billing of advertisers at the *Western Morning News* and *Western Evening Herald*.

### Sherry buy

HOSKYNS has completed the third sale of its Accounts Payable software for IBM mainframes since its launch in July. Harveys, of Bristol Cream sherry fame, has bought the software for £20,000, bringing total sales of Hoskyns' new Modular Application Systems to £100,000.

### Dial-a-ride

THE nation's first dial-a-ride service for the disabled has been launched in London by the Haringey Disablement Association, with the help of a General Automation Zebra 1500 computer. Fletcher Computer Services won the tender to supply the machine.

### Airport parking

THE British Airports Authority has gone to Godwin Warren Control Systems of Bristol to supply and install a computerised parking system at Heathrow Airport's Terminal 2 car park. The system will have equipment at three entry and five exit lanes linked to a cashier payment system.

### Big BT deal

COMPUTER Field Maintenance has won its biggest contract yet worth £1.5 million, for installing and maintaining British Telecom's new computerised Directory Enquiry System. The order, part of the overall £25 million contract between STC and BT, is one that ICL might have won had its CAFS database access product been at a more advanced stage.

### Applied orders

APPLIED Research of Cambridge has taken two big orders, one from Standard Telephone and Cables for a stock control system, the other from IDC Consultants for a computer aided design package. STC has ordered the Eros system, and IDC is taking two workstations based on a Prime 32-bit minicomputer for use on civil and structural engineering projects.

### Builder invests

CROYDON-based builder Mansell is investing £130,000 in an IBM System 38 to replace its System 34 on accounting and administrative work. The new system will provide better access for branch offices in Westminster and the City of London [illegible]

# Apple in 'friendly' push with III-Easy-Pieces

by George Black

APPLE begins a new push this week to keep its market share with the Apple III through "friendlier" applications.

British dealers are being introduced to Apple's rival to Lotus 1-2-3, the integrated spreadsheet, word processor and database which has had instant success on the IBM-PC.

Apple's product called III-Easy-Pieces, was written by Haba Systems of Los Angeles, author of the Quickfile database which it includes. Lotus developed 1-2-3 on the Apple III, but later decided to ignore that machine and sell it on the IBM.

Apple III was hived off as a separate "business unit" by John Scully, the new president brought in by Steve Jobs in July to give the firm a more aggressive commercial stance. Scully argued that Apple III was a specialist field unlike the II. He put in charge of the unit Dave Fraydon, who is currently touring Europe to promote its latest range of programs.

Fraydon is dismissive of statistics which have been quoted to show IBM holding 40% of the US micro market.

"Exaggerations like that and IBM's policy of not supporting a fully compatible software range across its machines are driving software writers back from the PC to us," claimed Fraydon.

He said the worldwide installed base of Apple IIIs had risen from 60,000 to 75,000 since August and that 400 of the 2,000 business software developers were writing applications to run under its SOS operating system.

Along with III-Easy-Pieces, the New Year will bring a "mouse" or hand-held input device for the III, and an in-house developed spelling checker.

# NatWest to sell its Irish companies

by John Riley

THE National Westminster Bank is to sell off the ICS Group of Irish computer companies to Ulster-based Lamont Holdings, for around £900,000.

The ICS (Industrial Computer Services) Group comprises five companies, four Irish and one US, which employ about 200 people in total. These are ICS Computing, ICS Computing (Ireland), Software Ireland, Computer Maintenance Ireland and the Californian-based Software Ireland Representatives Inc.

Software Ireland sells Sibol, which converts Digital Equipment's Dibol to Unix and Unix lookalike systems.

The sale is being conducted by National Westminster Bank's Ulster subsidiary, The Ulster Bank, in order "to concentrate on mainstream banking activities", said a NatWest spokesman. Increased use of online computing in the banks means they are buying fewer services from outside.

The book value of the ICS Group's assets at the end of June was £320,000. In the 21 months prior to that, the group had losses of over £144,000. That figure was reached after writing off £350,000 development costs for Sibol.

Sir Desmond Lorimer, chairman of Lamont, has also been chairman of the ICS Group, although, according to the NatWest spokesman, he has had no financial interest in the group.

Dennis Bell, Lamont Holdings company secretary, commented: "We comprise a wide range of companies – from textile to engineering – and have been looking for an opportunity to buy into the high technology area for some time. We plan to expand ICS' activities in many fields outside Ireland."


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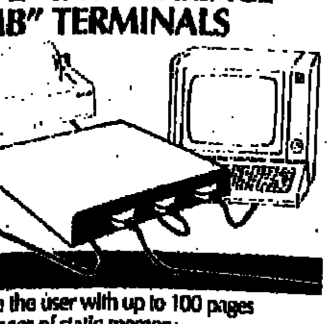

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# GA goes $300,000 back into the black

by Nuala Moran

US industrial automation specialist General Automation Inc announced a return to profit last week after three years in the red. A profit of just over $300,000 was made on a turnover of $17.1 million in the quarter August to October 1983.

This compared with a loss of $2.7 million on sales of $16 million in the previous quarter. The company also reduced its bank debt from $26 million to $14 million.

This turnaround is attributed to a three-year recovery programme launched by Leonard McKenzie, chairman and chief executive, in September 1980. The basis of this plan was to diversify out of General Automation's traditional industrial market and into the small business market.

General Automation introduced the Zebra range of Pick-based micros and minis and it now claims to be the Pick market leader in the US. There are 50 Pick dealers in the US and the company has signed up more than 40 of these.

The latest addition to the Zebra range, the 750, was on show at Comdex. It costs £7,995 and supports up to four users. The company emphasises that it is not a personal computer.

General Automation has also announced a Xenix-based Zebra range, which will be available in the UK from the second quarter of 1984.

According to Mike Long, managing director of General Automation in the UK, it is now the market product leader for Pick. Zebra sales have reached £1 million since March.

There are 10 dealers for Zebra in a number of vertical markets including property management, retail and distribution, commodity broking, local government and fleet management. The plan is to double this number and Long said there were several waiting to sign up at the moment.

But Long said that General Automation will still be concentrating on the industrial market and expects to do about £2.3 million or 30% of its business in this market in 1984. Sales dropped off as a result of the recession but this year Long said he had seen a gradual increase in business.

Overseas business accounts for 40% of General Automation business, and the UK is responsible for just over 40% of this.

Long said: "The total UK target for the current financial year is £7 million. We are already ahead of plan due to Zebra sales. We expect to do £8 million in 1985 with a healthy profit level.

"We make our profit primarily from selling hardware, but we know we need to sell complete systems. General Automation is not a turnkey systems house, but it will identify the best system."

LONG . . . "GA will identify the best system".

# Breakthrough for Ada in industry

by George Black

THE first big industrial project using the real time language, Ada, to be undertaken in this country is being started by ICI and Leeds University.

The joint research scheme, headed by ICI's design systems group at Runcorn, will take three years to complete and is being funded to the tune of over £100,000.

The aim is to use the expertise of the university's chemical and mechanical engineering departments to define an environment for constructing a new plant.

ICI is believed to have put a similar job out to a software consortium several years ago, which made no progress because the tools to accomplish it did not then exist.

Now Leeds has become the first site on this side of the Atlantic to get the Rolm Ada compiler validated by the US Defence Department and is hosting it on the first British installation of Data General's 32-bit supermini, the MV10000. ICI sees this as the chance it has been waiting for to relaunch the ambitious programming endeavour.

It will involve a set a of graphics workstations – the supply contract is now out to tender – to be connected by a local area network, either Cambridge Ring or Ethernet. ICI will be working on DEC, Vax and Prime superminis and minis.

Behind the university team is the head of Leeds chemical engineering department, Professor Colin McGreavy, a long-standing Ada enthusiast. He has been working closely with the head of software in the computer services department, David Holdsworth, who has also been involved with York University's Ada compiler.

McGreavy thinks it is unfortunate that Ada has become associated only with military uses. This, he says, could be to blame for the lack of commitment to the language among UK systems and software houses.

"A lot of them surprisingly still don't seem to have heard of Ada," he says. "They don't seem to be impatiently waiting to get their hands on the tools."

He emphasised the importance of a major national research effort and says Britain could lose a big opportunity if the Ada Group and Augusta Consortium plans, backed by the government, are allowed to die.

"Our philosophy is not that Ada is a definite answer. But it does provide an enabling tool for looking at systems design problems, and prevents you from becoming embedded in a system that you can't change."

# Tandy arms IBM-PC challenger

by Philip Hunter.

TANDY's challenger to the IBM Personal Computer, launched this month in the US, is already being kitted out with accounting software, following a deal with the international systems group MAI.

Tandy will sell nine accounting packages including nominal ledger, sales analysis and order entry at $495 each, giving MAI a potentially huge income from royalties.

Tandy launched its TRS-80 model at the Comdex show in Las Vegas with Microsoft's MS-DOS operating system, the basis of IBM's PC-DOS, instead of Tandy's own operating system used on all other members of the TRS-80 range.

With a huge chain of computer and consumer electronics shops in the US, Tandy has a better chance than most makers of IBM-PC clones of taking a fair slice of the market.

But no decision has yet been taken to market the model 2000 in the UK, according to Tandy UK joint managing director John Sayers.

Tandy UK is about to announce a range of standard accounting packages written by a UK software house for its Model 4 64K micro launched in July. The packages will cost £150 each. Accounting software is also being developed for the larger Model 16.

MAI also makes business computers, but according to UK managing director Mike Harris there is little overlap with Tandy, as MAI is not interested in the personal computer market. So there is no conflict of interest over the software deal.

WELLS . . . A coup with major US mini maker.

# Micro packager turns East in link with DEC

by George Black

LONDON-BASED micro accounting packager Omicron is thrusting into the Far East through a partnership with Digital Equipment.

The major US mini maker has put its logo on to Omicron's financial suite and is promoting it on the Rainbow micro in South-east Asia. Omicron managing director Vince Wells described the endorsement as "a coup".

Last week Omicron's Hong Kong distributor Advanced Computing director Ray Cheng to England to lay plans for casting the net wider. And in the same week came news of two other endorsements which could prove significant: RTZ Computer Services will sell the range in the UK; and British manufacturer of the Microframe, Tycom, is also to adopt the products as a standard offering.

ACR, formerly a Tandem OEM, is now getting a third of its income from marketing Omicron programs in Hong Kong, Singapore, Taiwan, Thailand, Malaysia [illegible]

# 'Govts have let US firms dominate in Europe'

by George Black

INTERVENTION by European governments has helped American firms gain dominance in the public database market, according to private sector pressure group, the European Information Providers' Association, Euripa.

The association, in a new policy document adopted at its London meeting, argues that the "ubiquitous government presence has been the strongest single factor inhibiting risk-taking by the private sector in recent years".

Fiercely nationalistic policies in the establishment of European host systems have favoured only US suppliers, according to the statement. The private sector provides only 30% of databases in Europe, compared with 60% in America.

Secretary-general of Euripa Derek Barlow pointed to the success of firms like ADP Network Services and Lockheed against European rivals.

The document attacks "attempts to apply all-embracing information policies according to a pre-conceived model". These have led to indiscriminate funding of services, the viability of which has not been tested in the marketplace, which means private initiatives based on real market demand have been put back several years. Those countries without a fully-fledged information policy seem to have the best-developed private sector information services.

The organisation, which represents about 80 firms, has commissioned a survey of 2,000 potential data suppliers, including software houses, publishers, videotex undertakings and consultancies, to get their views on the role of government. The results of the inquiry are to be presented at the [illegible]


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# Micro may lead to the boardroom

by Nuala Moran

MICROCOMPUTERS will provide data processing managers with a route to the boardroom if the DPMs play their cards right, according to Ron Yearsley of BIS Applied Systems.

To protect his position with the growth of the micro the DPM must become "custodian of data processing thinking," said Yearsley, speaking at last week's data processing seminar sponsored by Verbatim.

"To accept this new challenge the DPM will have to lose systems production facilities which take up all his time. Too much responsibility for production means he can't think about the future," he said.

Jeff Chittenden, information services director and vice-president of Citibank, told the seminar that use of micros in Citibank's computer systems had made a great difference to his job.

"Now I only work on strategic applications and let end users do the rest. I manage the computer database and I provide the data highway."

According to Chittenden, Citibank is the largest international bank in the world. It has an electronic mail network of 3,000 users. In the UK it has 1,000 terminals in 20 locations.

On business micros the policy is to buy IBM-PCs, but Chittenden said he would let people buy other machines if they put up a good enough case.

CHITTENDEN . . . "I provide the data highway."

Although he decides what type of equipment is bought, Chittenden is not in charge of every system. "The dealers recently bought themselves a database which I'm not responsible for."

Yearsley said this was happening to a lot of DPMs. "What I call the Apple II syndrome is happening in a vast number of companies in the UK. The growth of the micro is a threat to the centralist DP manager because a micro can quickly do what has previously taken the central DP department a long time," he said.

"A further threat to the DPM is that the guy in the periphery is beginning to think he knows a lot about computers."

Parents were getting interested via their children, Yearsley said. "They find out they don't have to be mathematicians and physicists to understand computing.

"The danger is that everyone begins to think it is all terribly easy and wonders why it has always taken the centrist so long to do things."

# International data links 'inadequate'

by John Riley

MANY companies have a good national data communications network within their own countries but lack a good infrastructure in their international data communications, says the chief of a major US information services company.

Tony Kench, managing director of Geisco's UK and Irish operations, made this criticism when announcing last week that Geisco has now made the transition from a time-sharing bureau to a fully fledged international systems house.

Kench also announced that Geisco, a subsidiary of the US electronics giant General Electric, has also become an IBM-PC dealer.

"Changing technology over the 1970s has meant that users can now get direct interactive access to systems. But over that time, we have built up our international communications network into 25 countries and now employ 5,000 people.

"We have become a solutions provider and not a computer resource provider," said Kench.

"When businesses expand abroad, they need to look at the computer systems underpinning their international business. Our job is to help companies manage their business on an international scale with the same ease that they can now do on a national scale," he added.

Explaining Geisco's move to the IBM micro market, Kench said: "We are not becoming an IBM-PC dealer for the individual market. We see ourselves as systems builders incorporating micros into big systems.

"Micros will be the terminals of the '80s, the device through which end users communicate, so it is important that some standardisation of micro is established.

"We decided to use IBM's PC because it is the most available worldwide, with ready support and maintenance. We did not choose it on the basis of a technical evaluation."

Geisco has two main remote computing services. The Mark III service uses 42 Honeywell DPS 8 computers grouped in clusters working in conjunction with Control Data disc storage units, and the other, the Mark 3000 service, runs via IBM 3081 mainframes. The company is currently evaluating a Japanese manufacturer's computers to replace DPS 8s.

KENCH . . . "Micros will be terminals of the '80s."

# New UK design centre

by Philip Hunter

LSI LOGIC, the gate array specialist now enjoying explosive growth in the US, has unveiled its first European design centre in Bracknell, Berkshire.

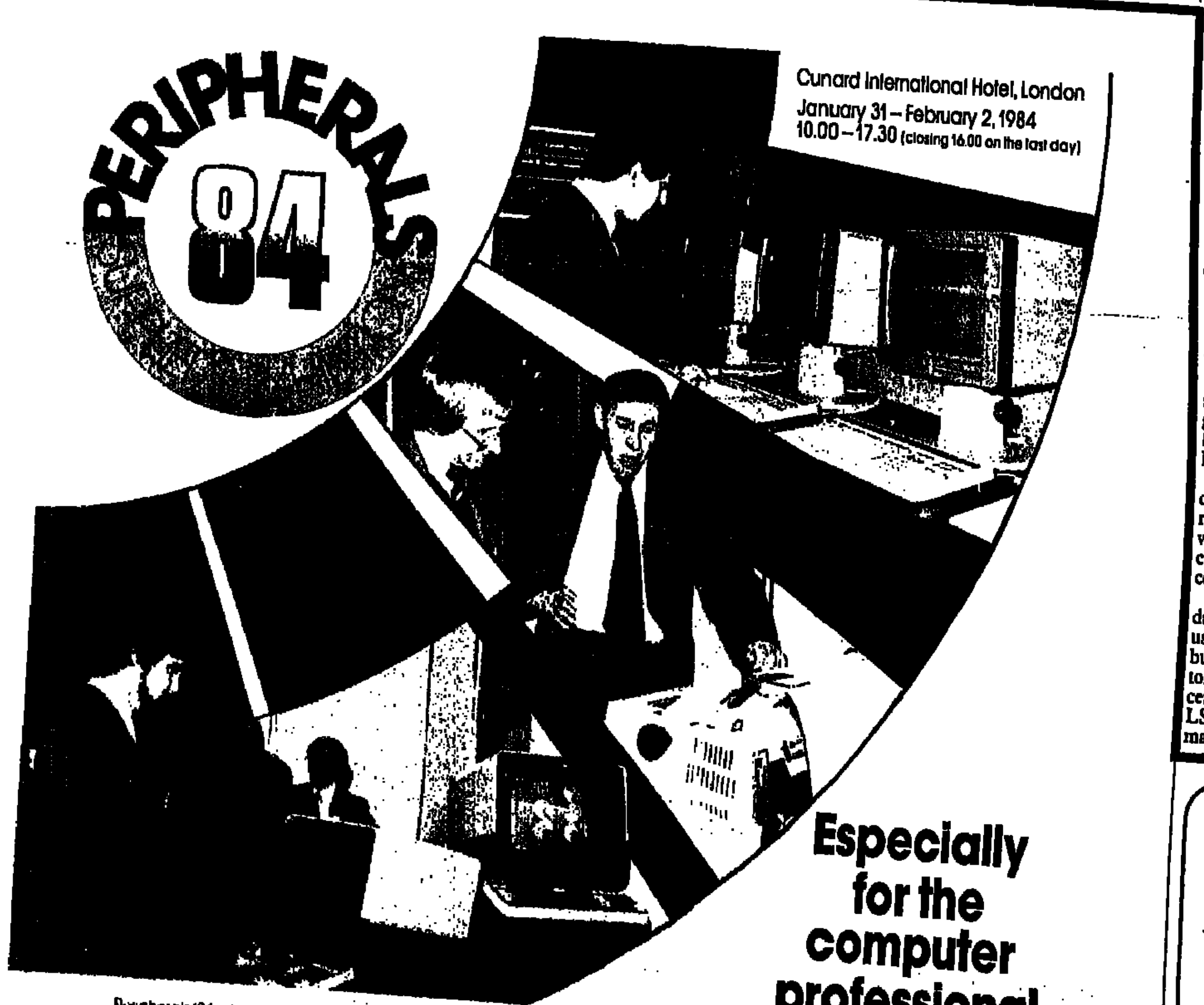
It is likely to throw up a strong challenge to UK firms like Ferranti, and Marconi Electronic Devices, which already have computer-aided system design centres in Europe.

LSI this week held the first five-day course for its customers on the use of its facilities for system building. After the training, customers hire their own office at the centre with a terminal online to LSI's Amdahl IBM-compatible mainframe so that they can design their own integrated circuits.

LSI vice-president for European operations, Robert Blair, said that some bigger customers, such as Nixdorf, had taken a licence for the LSI design software and installed it on their own computer to design logic arrays.

"But this is not the sort of thing a company starting up with five guys can do," he adds. "It is far too expensive."

Marconi offers a similar service from design centres in the UK, Sweden and Italy, although, unlike LSI, it will also supply its software and train customers to design gate arrays on their own hardware.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Both the show and the seminars are held at the Cunard International Hotel, Hammersmith, itself close to the centre of London and within easy reach of Heathrow Airport. Peripherals '84 is organised by Reed Exhibitions which also stages other major computer related exhibitions including Compec, Software and The Computer Trade Show.

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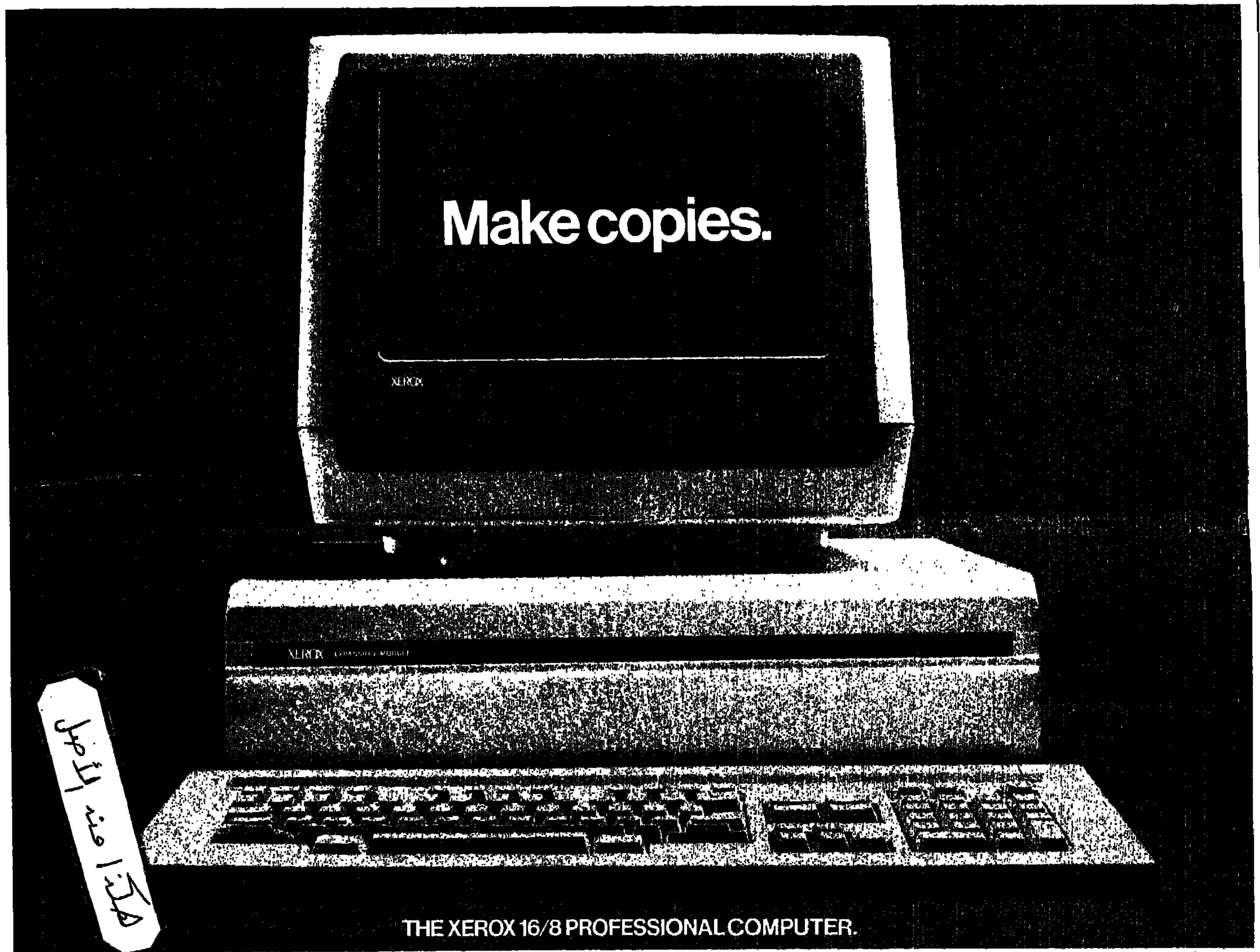


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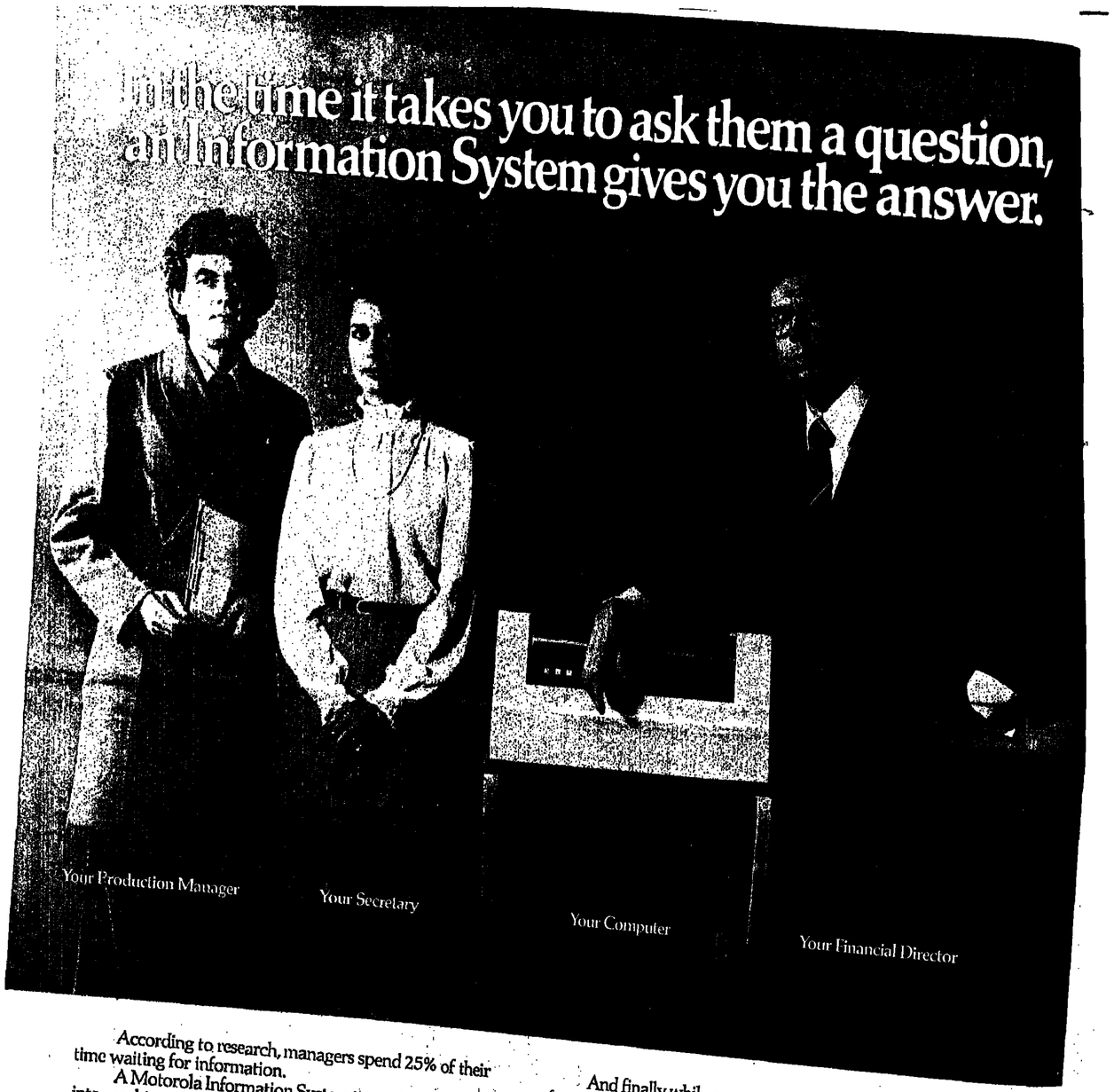


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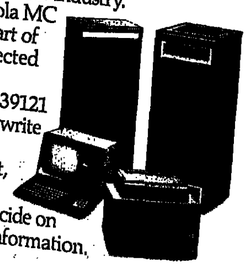

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A strategy document on software engineering promises to revolutionise the industry . . . John Riley reports

# Alvey steers production of software into the factory

**Software File this week takes a closer look at the Alvey Directorate's strategy for software engineering. The strategy document, one of four covering each Alvey topic, was released and reported in *Computer Weekly* last week. The VLSI strategy document is discussed in this issue (page 11) and the one for man-machine interface is due out shortly. A report sponsored by the Science and Engineering Research Council and the Department of Industry was adopted as the interim strategy document for intelligent knowledge-based systems in August.**

DRAMATIC changes will be made in approaches to software production over the next ten years which will affect nearly every analyst-programmer in the country.

At present software production is a labour intensive process, but it will eventually become capital intensive. The Alvey Committee strategy document on software engineering outlines how it intends to help bring this revolution about.

The primary aim of the Alvey software engineering programme is to steer software production from its current ad hoc "craft" basis to a "factory" basis, with language independent development methodologies. To achieve that aim the Alvey Directorate intends to spend £65 million over five years, of which £38.3 million will be from government sources.

Although the UK software industry is healthy at present, with "mushrooming growth in the number of companies offering software products and services, significant overseas revenues, and an academic community of world standing", the UK still has an adverse trade balance and faces increasingly stiff competition from abroad.

That is why an "essential prerequisite to the continuing health of IT is an ability to establish a capability of producing cost effective, high quality software," says Alvey software director David Talbot, who drew up the report.

Alvey programme director Brian Oakley warned recently that although we in the UK are excellent at software, the reason we have a competitive edge is "partly due to the slave labour rates we pay our people."

The software engineering programme which is, according to Oakley, "the most important part of the Alvey initiative", covers all stages of the software life cycle. It is divided into three concurrent parts: innovation; integration and implementation of ideas generated by innovative R&D; and, finally, exploitation and evaluation.

An important point about the programme is that it is to some extent market driven: "In many areas, existing market and economic conditions will be more significant than considerations of technical excellence," says the report. The programme will not shrink from importing ideas and methods from abroad where necessary.

The innovation part of the programme will take up £17 million, or 26% of the software engineering budget. The emphasis is to harness ideas quickly and bridge the "development gap" by testing ideas on life-size projects rather than on small-scale experiments.

Projects in the innovation area will aim at improving description and modelling of the software process; developing formal ways of specifying requirements; measuring software productivity and quality; and finding ways of re-using software components.

Projects will be awarded roughly in that order over the five years and findings will be fed into the integration and exploitation parts of the programme.

Oakley is particularly concerned with measuring software productivity: "It is easy to aim for a VLSI engine to push for one micron geometry, but software targets are difficult to express in numerical terms. We must change that. We need a drive towards measurement, not in lines of code, but in lines of quality code."

*OAKLEY . . . "We pay our people slave labour rates".*

The largest proportion of the software engineering programme's budget, 44% or £28.3 million, is to go into the integration and implementation part of the programme.

The aim is to produce integrated project support environments. These are defined as compatible sets of specification, design, programming, building and testing tools supporting a development methology that covers the entire software life cycle. They will also have multi-language capabilities.

The report sees a growing synergy between hardware and software design processes, and aims to develop one fully integrated project support environment that will cover both hardware and software development. The result of that environment will be an Information Systems Factory, the true focus of the programme, and which is scheduled for the end of the Eighties.

Before reaching the goal of an Information Systems Factory, however, there are three generations of integrated project support environments (IPSE) to be created.

The first generation IPSE, to be constructed in the first year, will be file-based, and Unix will be used as its basis. Talbot recognises that Unix is rapidly becoming a de facto standard over a wide range of systems and organisations and wants to take advantage of Unix developments, and the growing market for Unix-based development environments and tools.

The second generation IPSE will differ from the first generation, in that it will have a database-based rather than file-based tool set.

There will also be distributed project support.

The second generation will be developed over the second and third years of the software engineering programme, and will involve at least two approaches. One approach will be an evolution of the first generation Unix-based IPSE, and the other will be a "non-Unix attack".

In the report Talbot says that he does not "seek to establish Unix as a long-term Alvey standard", but that Unix is a good starting point. "Further work will be needed to protect against an undue level of dependence on the Unix base," he continues.

The third generation IPSE, which is expected to be initiated in the fourth year of the overall programme, will contain knowledge base and "intelligent" tools. That will be the Information Systems Factory, due for completion in 1989.

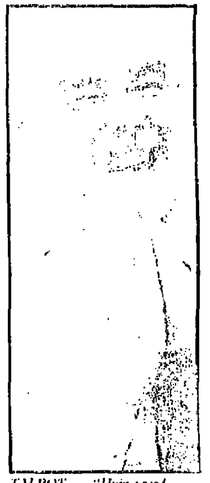
The third part of the overall programme, which will receive £19.7 million is to exploit and evaluate work conducted in the other two parts. Information and education services will be set up in the first year followed in the second year by demonstrations of the first generation IPSE in Software Production Centres. In the fourth year the second generation IPSE will reach that stage.

Talbot has had to tailor the overall programme to fit limited resources, and certain areas have been omitted, including database development and the production of specific applications such as computer integrated manufacturing. Also, time pressures mean that the Ada APSE will not be incorporated into the programme.

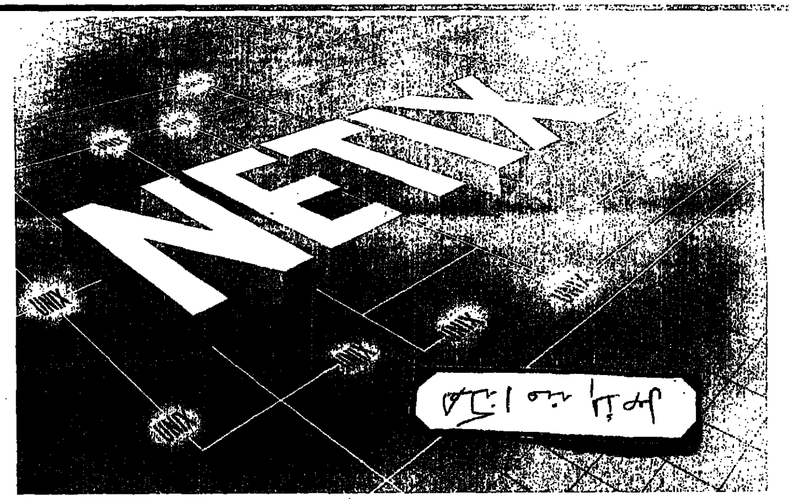
However, there will be strong links with the software engineering component of the £840 million European Esprit programme which will run for five years in the first instance.

The Alvey software engineering strategy overview is similar to the Esprit overview, with the three concurrent approaches of theoretical research, software development, and application. Esprit shares the idea of an Information Systems Factory as its goal.

"It is hardly surprising if the Alvey and Esprit programmes do look similar," said Oakley recently, pointing out that there was direct input into both strategies from the same sources. Talbot aims at establishing good levels of synergy between the two programmes as far as software engineering is concerned.



*TALBOT . . . "Unix a good starting point".*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# Leasing group caught in C&W share backlash

ANOTHER tender flopped last week as Dataserv, the US-based IBM leasing group, got caught in the wash made by the government's sale of Cable & Wireless shares. Only 70% of its offering of 6.8 million shares at a minimum tender price of 75 pence was taken up.

Rupert Faure Walker, of Samuel Montagu, the merchant bank handling the issue, was "very disappointed – sentiment changed completely after Cable & Wireless investors lost their appetite."

Another spokesman at Samuel Montagu commented: "The Cable & Wireless headache lasted over the weekend. Perhaps we are getting too close to Christmas. Certainly people seem to be tiring of the tender method."

But despite the reception Faure Walker is confident Dataserv is a "good and worthwhile company. It will not be long before Dataserv shares are trading at a premium."

At a striking price of 75 pence the issue has raised £7.35 million for Dataserv, giving it a market value of £18.6 million. The company has forecast profits of £2.1 million on turnover of around £100 million. That would put the company on a price earnings ratio of 19.2.

Atlantic Computers and United Leasing, the other IBM leasing house quoted in the UK, came to market with p/e's of 18 and 17 respectively. Both have improved since then, and on the basis of actual tax will work out at around 24.

The Dataserv group was formed in 1980 as a merger between Dataserv of Minneapolis and Premier Computers of Windsor, and before the issue its four founders each held 25% of the company.

Leasing IBM CPUs forms 56% of its business. Another 12% comes from maintenance, and the balance from selling secondhand machines.

Perhaps the most interesting aspect of the issue was that Dataserv should come to market in the UK at all without looking for a quote in the US. According to group chairman, Ronald Olson, Dataserv has come to London despite the attentions of US investment banks hoping to float the business in the US. This was partly because going public is cheaper here. He did not expect a higher rating in London than New York.

And Faure Walker commented: "Two of the four existing shareholders live in the UK, the company does half its business in Europe, and for an international organisation like Dataserv there is greater status in a London listing than in one of the US domestic markets."

Also it seems that there has long been a relationship between Premier Computers and Samuel Montagu.

He might have added that with the tribulations of Comdisco in the US it might not be an auspicious time to introduce a leasing company there.

But in London there is rarely a good time. The City has not been comfortable with leasing companies since the Lloyd's debacle. It is particularly wary of how the leasing business provides for deferred taxation in its accounts. If it is any encouragement to Dataserv, United Leasing made a disastrous debut in July. Half that issue was stuck with the underwriters, but United shares are now trading at 218p, some 50% higher than the price the market would not touch."

United Leasing has turned in storming interim figures. Pre-tax profits rose 112% to £1.26 million on turnover up 80% at £16.04 million in the six months to September.

*OLSON . . . "Going public is cheaper here".*

*HARP . . . Replaced as chairman.*

## All change at Vector Graphic

VECTOR GRAPHIC will not want to remember 1983. There was a time when the company was one of the brightest young things on the West coast. But after a year of management upheaval and persistent losses, it's all change again at the troubled micro maker.

Lore Harp has been replaced as chairman by Jean Deleage, general partner of Burr, Egan, Deleage & Co, one of the big US venture capital firms.

The move came after Burr Egan agreed to put $2 million into Vector Graphic. It now has a 9% stake in the company, and Deleage is clearly anxious to protect his investment.

Harp remains president and chief executive of the company and will still handle day-to-day operations. She resumed the presidency in April when Fred Snow, hired from Honeywell and in charge for less than ten months, was sacked. Vector Graphic also lost this year Robert Harp, Lore Harp's former husband, and co-founder of the company.

Deleage also becomes chief financial officer.

The new funds come at a critical moment. The company has just reported a first quarter loss of $701,000 on turnover down 10% on the same period last year at $6 million. The investment will take the form of a five-year subordinate loan, and will go straight towards working capital.

Not surprisingly, Bryan Martyr, marketing director of Vector Graphic in the UK, welcomed the move, claiming that "the bleeding has stopped", and that the company had turned a corner.

The new chairman is no stranger to struggling microcomputer companies. Among Burr Egan's high technology investments is Osborne.

## City bureau doubles profit

ROLFE and Nolan Computer Services has had a strong first six months. The company, whose shares are traded on the Unlisted Securities Market, has reported pre-tax profits up to 101% at £283,000, on turnover up 55% at £1,269,000, in the half-year to August 31.

The company provides specialist bureau services to City institutions. Most of its progress came from a Commodity Accounting Service where three factors boosted profits. Rolfe and Nolan put up its prices by around 10% at the beginning of its financial year in March; it has increased the number of commodity brokers it serves to 64 out of a total of around 250; while the commodity market saw a 20% increase in trading volume during the period.

The company's commercial services division, which acts as a DEC distributor, made money during the period for the first time.

*BUTLER . . . "Danger of a Tower of Babel".*

## Fund buys stake in Butler Cox

THE scramble among UK investment funds to get a part of the high tech action continues. Now the Lovat Enterprise Fund, managed by merchant banker Granville & Co, has put up £500,000 for a 21% stake in management consultancy Butler Cox & Partners.

Price Waterhouse recently valued Butler Cox at £2.4 million, and the company, set up six years ago, is expected to produce pre-tax profits of around £300,000 on turnover of £2.3m this fiscal year.

The Lovat Fund was formed in 1980 and has £7.5 million to invest in private companies. It represents institutional investors, including the Coal Board Pension Fund, Electra Investment Trust, Equitable Life Assurance, Legal and General Assurance, and the Prudential Assurance Society.

David Butler, chairman and founder of Butler Cox, insisted that the company had no immediate need for external cash, but felt that it could only benefit from a small number of "blue chip" investors.

Butler Cox will use the funds to encourage its overseas business. It plans to form a company in West Germany and is prospecting in the US for acquisitions.

Unlike the management consultancy divisions of the big accounting firms, and the major systems houses, Butler Cox does not get its hands dirty with installation work. Its consultancy services are at the policy level.

The company looked at other sources of investment before getting into bed with Granville and Co. Butler considered a merger with a compatible organisation, "a market research company with no information technology experience, but that would have destroyed the integrity of Butler Cox as an institution." And the company spoke to three other merchant banks.

The Lovat Fund views its investment as a "long-term relationship," and although it considers that Butler Cox would be marketable within three to five years, forcing an exit by floating the company is "not an immediate objective."

The fund has invested £4.5 million since 1980, and Granville investment manager Andrew Merriam sees Butler Cox as strengthening a portfolio which encompasses businesses from map publishing to computer software.

Butler pointed to two main areas of future opportunity for the company. He said: "Users need an overall policy for applying cheap technology. At the moment there is the danger of a Tower of Babel – individual users doing their own thing without a corporate strategy – and we can define a trade-off. This is a major concern." The second area he defined was the convergence of "information technology and broadcasting. Our clients want to know how to position for this."

*Company News is compiled by Dave Madden*

## Management buy-out at Hamilton

ADVANCED Technology Maintenance has been set up in a management buy-out from Hamilton Rentals, with backing from Meritor Investments, a venture capital fund.

Meritor Investments, funded by institutions, including the Rolls Royce Pension Trust and Midland Bank, has put up £180,000 for a 22.5% stake in the new company.

Advanced Technology Maintenance came out of Hamilton's service division and it will act as a third party maintenance organisation.

Tom Cranie, sales and marketing manager for the company, explained: "Hamilton started a service organisation to support the DEC and Hewlett-Packard products it handles, and we drifted into independent third party maintenance. Last year as a division our revenues from external maintenance were greater than from the Hamilton rental maintenance we did."

Not all Hamilton's suppliers liked the competition, and DEC dropped Hamilton Rentals from its list of authorised terminal distributors.

## Ferranti stays a favourite

IT is easy to forget that Ferranti does more than live off the back of the Ministry of Defence. The fact that, by turnover, its computer system division makes it the UK's No 2 computer manufacturer after ICL, goes largely unrecognised.

But in the City Ferranti is a favourite. It is viewed as arguably the most reliable performer in the UK electronics sector, and its latest interim figures confirm that status.

For the year to September 30 the company reported pre-tax profit up 25% at £14.8 million, on turnover ahead 30% at £207 million.

Ferranti said its order book stood at a record £500 million – 17% up on this time last year.

Turnover is running ahead faster than profits at the moment but margins look steady. Capital expenditure has increased 20% to £12 million – part of which went towards completion of the £10 million plant at Chaderton in Manchester, which has effectively doubled production capacity of uncommitted logic array systems.

Ferranti has not broken down its results by business area, as it does for finals, but it seems that the three main divisions – computer systems, the Scottish avionics group, and electronic components – all made progress. The one black spot remains the engineering division, which builds port handling equipment.

Venus Scientific and Ocean Research Equipment, both bought in the US last year, are now making modest contributions.

But despite its other interests, defence contracts in one form or another comprise around 40% of Ferranti's turnover. The company has now been selected as sole contractor to develop a radar system for the new Sea Harrier aircraft, and it is still benefiting in the wake of the Falklands, so the MoD looks set to be Ferranti's largest paymaster for the foreseeable future.

## SHARES TABLE

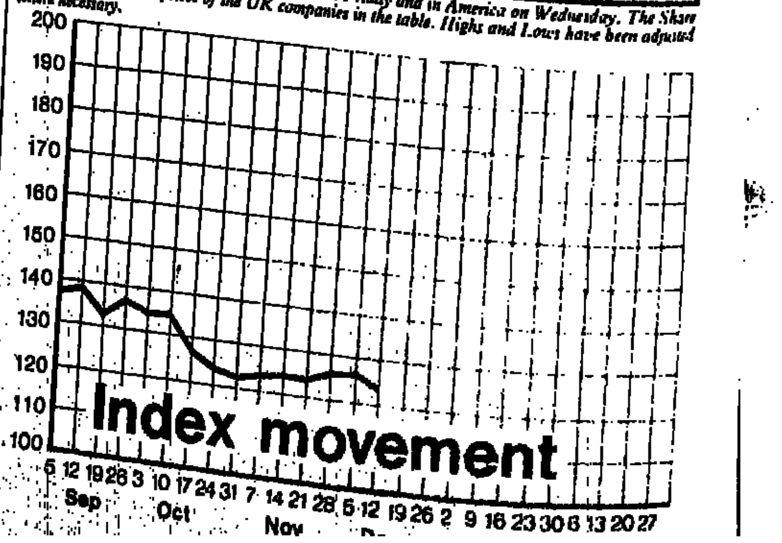
*The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.*

Date 15/12/83 — Index 123.74 — Change -2.86

| 1983 High (pence) | 1983 Low (pence) | London Stock Exchange Stock | Price (pence) | C'nge |
|---|---|---|---|---|
| 326 | 277 | Abingworth (10p) | 312 | – |
| 545 | 240 | ACT (App Com) (25p) | 495 | +16 |
| 447 | 245 | Atlantic Comp (10p) | 423 | –24 |
| 88 | 41 | B. Bov Kent (25p) | 84 | – |
| 183 | 124 | Chubb (20p) | 180 | +6 |
| 178 | 118 | Cole Group (25p) | 142 | – |
| 430 | 182 | CASE (20p) | 430 | +10 |
| 280 | 200 | DPCE (5p) | 243 | – |
| 263 | 173 | Datastream (5p) | 210 | – |
| 665 | 520 | De La Rue (25p) | 560 | +17 |
| 418 | 284 | Extel (25p) | 408 | +12 |
| 689 | 411 | Ferranti (50p) | 637 | –2 |
| 248 | 183 | GEC (5p) | 194 | +3 |
| 82 | 50 | ICL (25p) | 50 | +4 |
| 61 | 40 | Kalamazoo (10p) | 40 | – |
| 375 | 223 | Kode Int (25p) | 223 | –7 |
| 262 | 228 | Logica (10p) | 280 | –7 |
| 525 | 230 | Memec (10p) | 270 | –12 |
| 180 | 130 | Muirhead (25p) | 150 | +3 |
| 690 | 488 | N'market (1981) ($0.05) | 640 | –6 |
| 2700 | 987 | Norsk Data | 2313 | –50 |
| 320 | 180 | Office & Elect (25p) | 188 | – |
| 1236 | 710 | Philips Lamp (Fl 10) | 912½ | –69½ |
| 286 | 178 | Plessey (25p) | 222 | +14 |
| 50 | 18 | Quest Auto (10p) | 32 | –3 |
| 297 | 184 | Racal Elect (25p) | 204 | +18 |
| 320 | 226 | Star Comp (10p) | 280 | – |
| 510 | 275 | Systems Des (10p) | 490 | –16 |
| 248 | 214 | Telemetrix (5p) | 248 | +8 |
| 644 | 418 | Thorn-EMI (25p) | 644 | +18 |
| 187 | 120 | UC&T (50p) | 135 | +8 |
| 205 | 130 | United Leasing (20p) | 206 | +4 |
| | | **Unlisted Securities** | | |
| 122 | 104 | Acorn (1p) | 117 | – |
| 128 | 78 | Bus Comp (10p) | 78 | –1 |
| 130 | 87 | CPU (5p) | 121 | – |
| 180 | 113 | Cifer (10p) | 113 | –4 |
| 690 | 146 | Consult (C&FI) (10p) | 630 | –2 |
| 295 | 197 | Feedback (10p) | 258 | –20 |
| 314 | 126 | Imm Bus Sys (10p) | 142 | –4 |
| 81 | 75 | Imtec (10p) | 75 | – |
| 228 | 188 | Int'europe Tech (20p) | 226 | –2 |
| 84 | 27 | J.B.D. (5p) | 30 | – |
| 82 | 70 | M.M.T. (5p) | 80 | – |
| 300 | 180 | Memory Comp (IR10p) | 238 | –5 |
| 265 | 102½ | Micro Bus (10p) | 265 | – |
| 640 | 265 | Micro Focus (10p) | 620 | +5 |
| 445 | 310 | Microgen (10p) | 420 | –10 |
| 237 | 138 | MRes 33 (10p) | 210 | +5 |
| 64 | 25 | Mnemos (10p) | 25 | –2 |
| 240 | 156 | NMW (£1) | 182 | – |
| 227 | 170 | Real Time (5p) | 227 | +5 |
| 146 | 81 | Rolfe & Nolan (10p) | 142 | +2 |
| 197 | 90 | ScanData (10p) | 90 | –4 |
| 80 | 60 | Trident Comp (10p) | 60 | – |
| 120 | 65 | Zygal Dyn (5p) | 120 | – |

| 1983 High ($) | 1983 Low ($) | US Stock | Price ($) | C'nge |
|---|---|---|---|---|
| 29 | 15¼ | Amdahl | 17½ | [illegible] |
| 60 | 19½ | Apple Inc | 21¼ | [illegible] |
| 60 | 34½ | Auto Data Pro | 35¼ | [illegible] |
| 57⅛ | 43¼ | Burroughs | 47¾ | [illegible] |
| 18 | 8¼ | Comp Auto | 6¼ | [illegible] |
| 73 | 18½ | Comp Sciences | 19½ | [illegible] |
| 14¼ | 8½ | Comshare | 11 | [illegible] |
| 82½ | 38¾ | Control Data | 45½ | [illegible] |
| 56 | 27¼ | Cray Research | 52¼ | [illegible] |
| 40¾ | 20½ | Data General | 33¾ | [illegible] |
| 29½ | 18¼ | Datapoint | 29½ | [illegible] |
| 127¾ | 67¼ | Digital Equip | 88½ | [illegible] |
| 41¼ | 23½ | Elec Data Sys | 38 | [illegible] |
| 16¾ | 6¼ | Gen Automation | 17¾ | [illegible] |
| 43¾ | 19¾ | Gould | 31 | [illegible] |
| 51 | 33¾ | Harris | 39 | [illegible] |
| 48 | 34¾ | Hewlett Packard | 41 | [illegible] |
| 134¾ | 85 | Honeywell | 134¾ | [illegible] |
| 44¼ | 20¼ | Intel | 41½ | [illegible] |
| 133¾ | 95½ | IBM | 118¾ | [illegible] |
| 71⅜ | 54½ | Litton Ind | 67 | [illegible] |
| 17⅜ | 12¼ | MDS (Mohawk D) | 15¼ | [illegible] |
| 32¾ | 19 | MSA (Mgmnt Sci) | 28½ | [illegible] |
| 18½ | 9¾ | Mngmnt Assist | 18½ | [illegible] |
| 15 | 7½ | Modular | 7¾ | [illegible] |
| 146 | 84½ | Motorola | 139¾ | [illegible] |
| 19 | 6⅛ | National Semi | 17½ | [illegible] |
| 134⅜ | 87½ | NCR | 131⅜ | [illegible] |
| 36½ | 24 | Perkin-Elmer | 27½ | [illegible] |
| 29½ | 13⅛ | Prime | 17 | [illegible] |
| 55¾ | 42¾ | Raytheon | 42¾ | [illegible] |
| 37½ | 25¼ | Signal | 33¼ | [illegible] |
| 47 | 33½ | Sperry Comp | 44½ | [illegible] |
| 24½ | 16 | Storage Tech | 14⅛ | [illegible] |
| 37 | 24⅜ | Tandem | 38 | [illegible] |
| 62⅛ | 36⅜ | Tandy | 43⅛ | [illegible] |
| 171 | 106⅛ | Texas Inst | 134 | [illegible] |
| 27½ | 16½ | Tymshare | 27¼ | [illegible] |
| 40⅝ | 30½ | Wang Lab B | 33½ | [illegible] |
| 17 | 9½ | Wyly | 11⅛ | [illegible] |
| | | **Recent Issue** | | |
| 161 | 160 | Pancom (10p) USM | 161 | +11 |

*The table shows the closing prices in London on Friday and in America on Wednesday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.*




# MICRO NEWS

VLSI is one of the four broad areas within the Alvey Directorate's programme for advanced information technology. Micro News this week looks at the VLSI strategy document just published, and the software engineering strategy published last week is also examined in this issue (page 9). A strategy for man-machine interface is due. A report published in August was adopted as the interim strategy document for intelligent knowledge-based systems.

## Alvey plans for VLSI and CAD

by Robert Parry

THE Alvey directorate this week disclosed its plans for VLSI and chip CAD. The thrust of the strategy document, drawn up by VLSI director Bill Fawcett, is to ensure that the UK has home-grown capability to produce the high density chips that will be needed by other sectors of the four-pronged Alvey programme.

"At the end of the road we are trying to set up the whole process for MOS and bipolar technology," says Fawcett. "The rest is a means to an end."

The end is to demonstrate one micron geometry CMOS and bipolar processes within five years: the means is co-ordinated research on separate process stages, chip architectures, and CAD tools for VLSI design.

Demonstrator circuits – to show off progress in the programme – will be produced along the way. Many of these will be circuits required by other Alvey demonstrator projects from the intelligent knowledge-based systems and man-machine interface parts of the overall Alvey plan in particular, and chips needed for military development programmes.

Technology aspects of the Ministry of Defence very high performance integrated circuit (VHPIC) programme now come under Fawcett's wing within the Alvey programme.

"We will need to make sure chips are available for these Alvey and MoD demonstrators," says Fawcett. "That is why the strategy has an intermediate step, to produce 1.5 micron geometry circuits within the first two years."

The steps along the way to achieving these VLSI chips are spelt out by Fawcett in the strategy document: individual process steps and techniques, including basic studies on materials and device physics; processing chemicals and equipment; assembly of process steps into whole processes with tested design rules for producing hardware for evaluation and capable of expansion into full scale production; research on new circuit architectures and algorithms; development of CAD tools and languages in step with the evolution of whole VLSI processes; and investigation of the infrastructure of system software, computing hardware and networking needed for collaborative development and use of CAD tools.

The VLSI and CAD programme will have £130 million set aside – £100m for VLSI and £30m for the CAD part. Just over half will come from government sources, according to Alvey director Brian Oakley. This is twice the amount earmarked for the software engineering programme, the strategy for which was published last week and is discussed in this issue (page 9).

But as Oakley says, the amount of money does not necessarily reflect the relative importance. "Some things just cost more than others," he says.

Inevitably, the companies that will play the major part in the whole process development will be the established ones. "It will have to be picked up by the likes of Plessey, Ferranti, GEC and STL," says Fawcett.

But he sees a big part for the many smaller companies involved in the semiconductor manufacturing business in the smaller stages that will contribute to these whole processes.

And there should be a big part for state-backed Inmos. "We hope Inmos will play an important role in the strategy," says Oakley. "We want to involve Iann Barron (Inmos's co-founder) personally." Barron was on the original Alvey committee.

Fawcett sees Inmos contributing most of the CAD side of the programme.

Fawcett's strategy document identifies adequate CAD tools and systems as crucial to efficient VLSI design, and indicates the desirability of producing a common design environment for a range of different circuit architectures.

"It will be necessary to have the cost-effective capability to design complex chips with upwards of one million transistors in a way which ensures the correctness of implementation and the testability of the manufactured component," he says in the document.

The first chip demonstrators are likely to come out of the CAD hardware, as are major systems demonstrators. Dedicated hardware systems to perform logic simulation already exist and could be integrated on silicon.

A major system demonstrator could be formed around the next generation of VLSI design workstations based on a substantial number of microcomputers and incorporating a range of special-purpose CAD chips.

Inmos's transputers will be building blocks for parallel computing systems. They have been developed in the Bristol R&D centre set up by Inmos.

Silicon will still be the basis for the VLSI circuits to be developed through this Alvey programme. Some funding may be used on gallium arsenide and related III-V semiconductors where it is considered of prime importance, but significant diversion of funds would prejudice the chance of success in silicon VLSI, says the report.

The silicon processes to be developed are a basic CMOS one for logic and memory, with NMOS memory availability as an option; a CMOS process for military requirements, most probably CMOS silicon on sapphire; and bipolar processes for high speed logic and memory and special purpose interfaces.

### PUZZLER

THE number 14,247 has the peculiar property that, when multiplied by three, it produces the same five digits in a different order – 42,741. What is the smallest such number – not counting artificial ones starting with zero? See page 31 for solution.

*McNEILL . . . "Mismatched."*

## Systime puts 432 programme on ice

by John Riley

SYSTEMS builder Systime is to put its Intel 432-based Ada development workstation programme on ice. It will wind down its collaboration with software house High Integrity Systems by early next year and devote its R & D efforts to Intel 286 and 386 based systems.

Systime stresses that it has no quarrels with the full 32-bit virtual memory iAPX 432 chip set, but that it is not the right path now.

"The profile of the company and the profile of the product were mismatched," says Ian McNeill, Systime's R & D director. "Our sales force is aimed at the business end user and we are not geared towards the highly technical environment."

Systime originally took the 432 chip set on board because it thought that was Intel's long term solution in 32-bit data processing, says McNeill. "It became apparent that the 432 set was not Intel's only 32-bit strategy and that it and the 8086 compatible 16-bit 286 and full 32-bit 386 chip family were on different R & D paths."

"The 432 architecture is radical with a transparent multi-processing capability and includes failsafe and software primitives on the chip – that is definitely the architecture of the future – but implementing it is another matter," he said.

"I hope that Intel will now converge the 386 and 432 chips."

Peter Harverson, Intel's UK regional sales manager, would not comment on that possibility, but said: "Our investment in the 432 chip set is well spent money and we expect to see relevant benefits."

Managing director of HIS, Daphne Gordon, believes that the 432 chip set has a good architecture for real time systems and is especially well suited to Ada.

"We're seeing Ada and the 432 used for real time applications now, and I expect to see them used for data processing applications tomorrow – – I expect the Systime will grow into that direction."

"We don't consider our 432 plans to be a failure," said McNeill. "We now have the expertise in that area. We are committed to our 286 plan for next year and a 386 follow-up later. We've put the 432 on ice."

## Chip set to support Ethernet

by Donald Kennett

NATIONAL Semiconductor aims to be the first semiconductor manufacturer to support Ethernet and the low-cost version, Cheapernet, with a chip set.

European marketing manager for interfacing, Ian Martin, said that the three chips in the NatSemi set would cost less than $100 and would bring down the cost of implementing a network connection from between $2,500 and $3,000 to a fifth of that.

The last of the three to come out, the DP8390 controller chip, saves anywhere from 10 to 30 devices in the chip count of previous implementation, according to Martin.

The Cheapernet version, proposed to the US IEEE 802.3 standard committee by ECMA (the European Computer Manufacturers' Association), enables the whole of the interface to be built into the back of the device being attached to the network. The lightweight Cheapernet cable is brought right up to a T-connector at the back of the device.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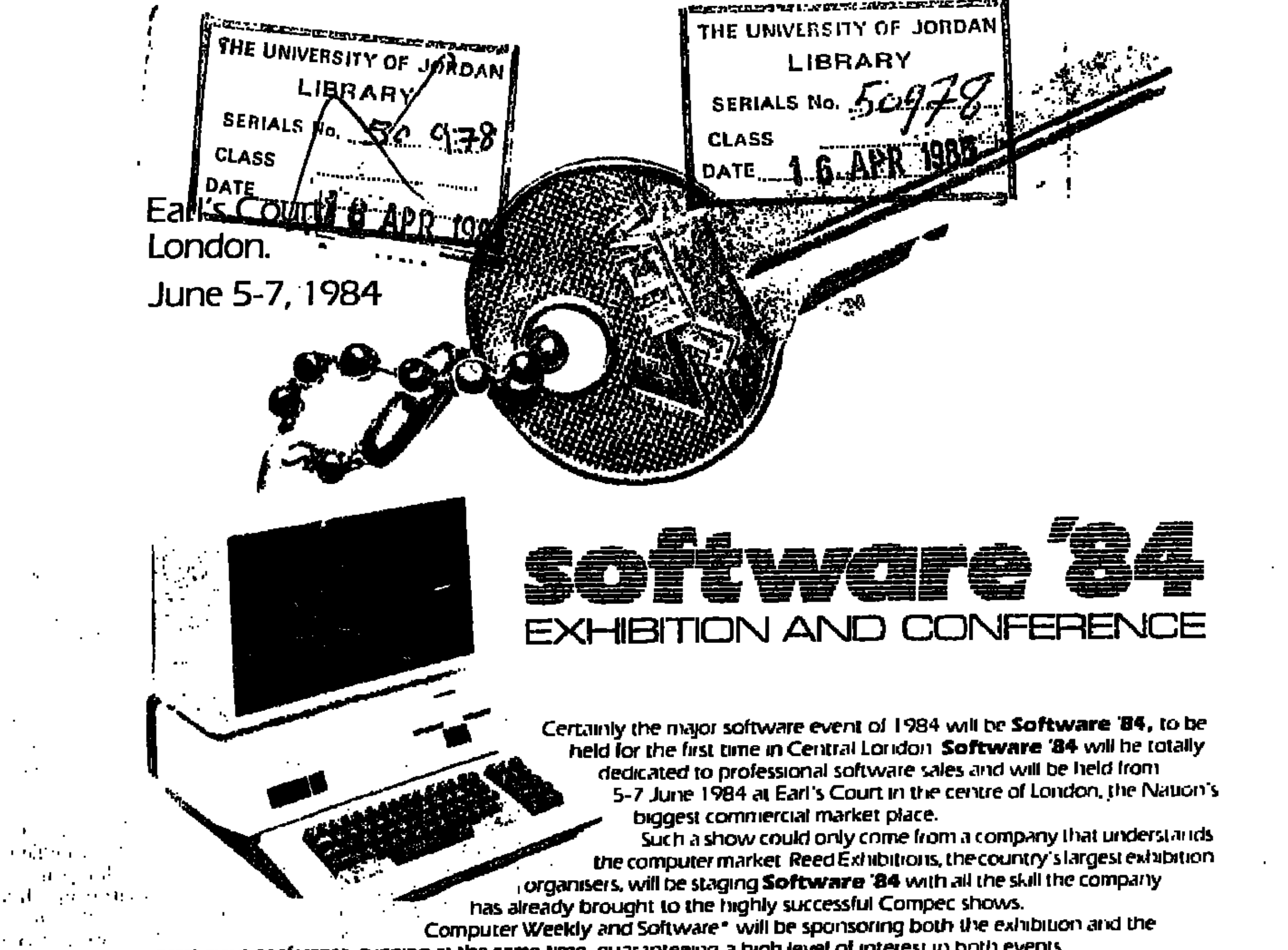


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software '84
EXHIBITION AND CONFERENCE

PROFILE

# Crazy idea that brought back the Americas Cup

IN March 1981 John Dougall, then head of Data General in Australia, stuck his neck out to try to "achieve the unachievable". He decided to sponsor Australia's America's Cup challenge, and lent the team three computers and one of his engineers, who was also a world class sailor.

"It was at a sales conference and the guest speaker was Australia II skipper John Bertram. I made up my mind then and there to back them," he says. "At the time my colleagues thought I'd gone crazy.

"We rigged up sensors in 10 places on the yacht to pick up data, such as wind speed and direction, wave height and direction, angle of keel, etc, which was entered onto a Micro Nova. During trials over the two years, the data was stored, and at the end of each day's run the optimum performance suggested by the computer was compared with the crew's actual performance."

It was that information that tipped the balance and enabled Australia II to win the event, which to Australians was like winning the World Cup at football and beating the West Indies at cricket on the same day.

Dougall, who was recently promoted to general manager of Data General UK and Ireland, proudly displays a framed and signed picture of the yacht in his office in Hounslow.

Dougall is not a sailor himself. "If I were, I wouldn't have backed them," he says. He saw it as a straight commercial proposition.

"We got exclusive information on the race, which we distributed to heads of Australian industry twice a week for three months, and John Bertram is now available to lunch with our customers for the next year."

Dougall gained a commerce degree from Melbourne University in

*DOUGALL . . . "An offer I couldn't refuse."*

by John Riley

1964, and is a qualified accountant. He immediately joined IBM in Melbourne and worked his way up through the ranks, starting off as an operator on the night shift in a service bureau, and doing the packaging and shipping to the field.

He moved on to programming and systems engineering and by the age of 23 was in charge of systems engineering in Melbourne. He then switched to sales, became a marketing manager, and moved to New York in 1974 as product manager for the Systems 32 and 34.

After that he became assistant to one of the senior vice-presidents. "I saw how the organisation worked from bottom to top. New York gave me the opportunity to broaden my knowledge – so rather than being a super salesman, I saw how to bring a product to market and how strategic decisions are made at corporate level."

In 1976, he found himself back in Sydney as head of marketing. Then, he says, "Data General made me an offer I couldn't refuse." He was appointed general manager for Australia and New Zealand and in September 1982 his post was expanded to take in South-east Asia too, including China.

"The Nova architecture is well liked in China," he explains. "There are hundreds of Nova 2s and 3s there, and Nova look-alikes are manufactured in China. With their wooden veneer covers they look like 1950s TV sets and the 10 Mbyte-discs are in wooden cabinets, rather like a cocktail cabinet.

"I am sure a lot more activity, especially software, will migrate there."

Dougall increased Data General's turnover in Australia from around 14 million US dollars in 1980 to 30 million US dollars this year. Over that period he boosted the number of Australia's top 100 companies using Data General equipment from eight to 41.

He has noted a higher incidence of networking systems over here. "There are more office systems in the UK and the CAD/CAM is growing quickly," he adds.

As for making changes to Data General, he says: "I am a believer in evolution not revolution. The UK subsidiary is the largest and we have an aggressive growth plan. We aim to achieve a 25% increase in revenue in 1984 and boost our staff from 550 to 680."

He has four aims: to achieve profitable growth; to increase Data General's visibility in the UK; to maintain and improve field service; and to maintain and improve employee morale.

"We want to make a fair, not rapacious profit and plough it back sensibly," he says. "I want engineers to get customers' equipment back up as quickly as possible, and that means that they must be prepared to turn to others for help, rather than demonstrate their own technical excellence to fix the problem without regard to the time factor."

He is sending round confidential and anonymous questionnaires to his staff.

Dougall is conscious of the change that swept Data General in the late 1970s. "When we started out, we sold 'hot boxes' – tools, not solutions," he says, "and that carried us through the 70s.

"In the late 70s people stopped buying hot boxes, as applications software became more important. We did miss the boat with 32-bit minis, but we've caught up now and are ahead. We didn't have a strategic plan until 1980 and were all things to all people."

Data General is now focusing its effort on three areas: office systems, professional computer systems and industrial automation.

Although he does not sail, Dougall is a keen tennis player, likes driving fast cars – he is changing his Alfa Romeo and Mercedes for a Jaguar now that he is in the UK – and enjoys swimming.

"In Sydney I lived by the sea and went surfing every day before going to the office," he says. That, at least, is one activity he will not be able to keep up now he is at Hounslow.

PLATFORM

# Dual processors make sense

IT has been two years now since 16-bit chips first became available, and even longer since their arrival was first forecast by the chip making industry.

Personal computer manufacturers adopted a 16-bit chip with enthusiasm, only to find that the software market was taken by surprise when the first 16-bit machines began to appear.

It took five years or so for the current eight-bit software packages to evolve and, though it is easier to upgrade than write from scratch, it will still take two to three years, in my opinion, for such a wide variety of 16-bit software to be generally available.

Where, then, is the proliferation of 16-bit software which we should be able to expect? Much of that available is simply the old eight-bit application package with the assembler code element translated to operate on 16-bit machines. The package does not exploit the 16-bit machine's power, for example in allowing multi-user operation.

There is plenty of eight-bit software in use. Users of 16-bit micros, though, may well find themselves wasting their entire investment in eight-bit software to date.

New software packages being introduced for the first time are, of course, written in 16-bit and generally are very capable. But there are very few of them, and often users wanting to take advantage of them will wish to retain other computer applications on their old eight-bit packages.

Some 16-bit application software that has been translated from eight-bit does form an exception to this rule. Some high level packages have been re-compiled on 16-bit quite well, for example those written in CIS Cobol have translated successfully.

The user, therefore, is faced with a need to take advantage of these new 16-bit offerings, without losing the ability to continue using eight-bit software for applications that do not justify a re-investment.

Even if the software industry had been ready with plenty of good 16-bit packages, therefore, there would still have been a logical need for dual processor machines where existing eight-bit software investments were to continue in use.

The absence of such a wealth of 16-bit software cannot be blamed on the lack of de facto industry standard operating system. CP/M 86 is gradually taking over as the standard system for 16-bit micros. Whether purists would argue that it is technically the best is neither here nor there – it exists and it is leading the field.

Single 16-bit processor machines are, of course, perfectly adequate for use as intelligent terminals to 16-bit minicomputer configurations. They are also suitable where users are entering the computer scene for the first time and have no eight-bit software in use. Such users can obtain adequate 16-bit packages for their requirements.

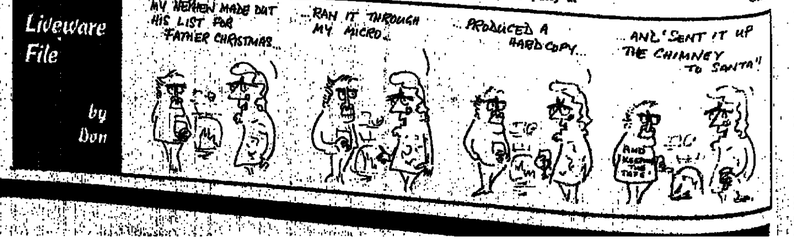
In all other instances, however, it makes sense to look for a dual processor machine. That seems to be where the future will lie for the small business user.

When the software industry does finally produce some results, that dual processor need will be reduced, but even then only slightly.

*Mike Blench is development director of LSI Computers.*

## 10 YEARS AGO

FROM COMPUTER WEEKLY OF DECEMBER 13, 1973 . . . The Society for Computers and Law was set up by the Law Society and other bodies to encourage use of computers by lawyers . . . ICL's pre-tax profits stood at £12.4 million, compared with £3.32 million in 1972 . . . Official accreditation was given to IBM by the Soviet Union, giving it the right to open an office in Moscow . . . IBM's Stairs tree-branching storage and information retrieval system was demonstrated at the House of Commons by MP David Price, chairman of the Parliamentary and Scientific Committee.




DOWNTIME

# What's bugging them in Arizona?

WATERGATE has nothing on the mysterious case of Captain Doug Steele's radiotelephone. It all began when several drug investigations went wrong in Arizona, with the villains always one up on poor old Captain Steele and his team.

Detectives became suspicious, took a look at Steele's phone and found an FM transmitter there attached. A lead from the transmitter led to the grounding wire of the phone, enabling anyone within nine blocks (about a quarter of a mile) to tune in and hear Steele's conversations both off and on the phone.

"We took this FM radio," explained Evan Williams, a detective called in to investigate, "and very slowly we turned the dial. While we were talking in the room, all of a sudden our voices came through the radio."

This was but the iceberg's tip. It turns out that half the government phones in Arizona's Mohave county were capable of transmitting conversations, even when the phones were on the hook. How come?

At first the FBI itself was suspected of bugging the county's phones – this would be quite legal, if a little worrying to Steele and his fellows. But in fact the blame lies elsewhere.

It turns out that 110 of the county government's 247 phones were linked up to a computer in the basement of the County Courthouse, supplied and maintained by the Canadian telecoms giant Northern Telecom.

According to Sheriff Bo Richardson, some of these phones had been altered to allow, in theory, anyone in the world with a computer to dial up the Northern Telecom computer and listen in to government conversations.

Northern Telecom, which has sole access to the computer, is refusing to discuss the case. But according to Williams, the sheriff's experts have demonstrated that Northern Telecom security people that the system is bugged.

Because neither the FBI nor Northern Telecom is commenting it is not clear exactly how the phones have been altered, except in the case of the FM transmitter attached to Captain Steele's own phone. The investigation continues and, like Watergate, I doubt we shall ever quite reach the end of it.

# Plug in for clean feet

NEWS of a startling and novel product, the result of work by top European brains, plopped through my letter box this week. It looks certain to liven up any office party with Christmas around the corner.

For it's a doormat that you plug into the mains.

The amount of effort put into the development of this revolutionary floor covering puts the UK's contribution to World Communication Year in the shade (what doesn't? – Ed). According to the manufacturer, aptly named Walk Off Mats, it is "the product of the combined expertise of Europe's leading manufacturer of rubber-backed dust control mats and Southampton University Wolfson electrical research department."

You plug it in the mains, so the story goes, to conduct static electricity away to the earth cleverly via the office mains supply. The idea is to get rid of the static caused by friction between your Marks and Sparks man-made socks and all the naughty bits underneath before it freaks out the company computer.

And when it gets dirty, you can wash it (it's best to unplug it first though).

# Variety is the spice of parties

FOR those who missed the Royal Variety Performance this year – and consequently your annual fix of trick cyclists and performing poodles – never fear, the Christmas party season is upon us.

Eat drink and be merry for tomorrow we die seems to be the motto in the cracker for many computer companies this year.

They are really pulling out all the stops to make things go with a bang.

The Span Group, for example, has organised not only disco, buffet and cabaret for its festivities, but also a jazz band, jugglers and fire eaters, who are to do their thing at a hotel in the Strand to an audience of bemused DP people.

These bemused DP people will be no doubt wondering why they are not eating hot food too.

To go one step better, Comac is holding its promotional party at trendy West End niterie Stringfellows.

Guests will be treated to a personal appearance by the owner Peter Stringfellow, a Northern person venu with a bad perm, who will probably be able to give a few tips to computer entrepreneurs, even if only on how not to dress at Christmas parties.

But no amount of weird and wonderful diversions can distract attention from the real, unwholesome mercial meaning of Yuletide which is of course alcohol.

No one I spoke to would own up to how much they reckon will be consumed at this year's knees-ups, but one thing is for sure.

On sighting a free bar all those types who drink half a bitter for the most part of the year will almost definitely develop an insatiable appetite for crème de menthe frappé and Harvey Wallbangers.

*Chas*

# ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, December 15/22, 1983

# There's no sense in this system

IT is a hard pill to swallow, but with over three million unemployed in this country, some major employers have to look overseas for qualified staff. That is the story being told by the group personnel director at Plessey, Parry Rogers, who says he has to recruit hardware and software engineers from Australia, New Zealand, Canada, and from elsewhere in Europe because of the UK's "crazy education system."

Rogers is keeping good company in criticising UK education. Earlier this year Robb Wilmot, managing director of ICL, and David Baldwin, UK managing director of Hewlett Packard, took swipes at the UK education policy. And this week Sir Kenneth Corfield, chairman of Standard Telephones and Cables, said the government must revamp the country's approach to education and training.

Rogers says that his company would like to see more university resources going on electronic engineering at the expense of the social sciences. He believes there are a large number of university graduates unable to find jobs because they do not have the skills that industry needs.

Certainly there are not enough graduates in maths, physics, and engineering. Yet the essential point is that there are not enough graduates in total if the UK wants to compete in international markets. It should not be a question of sacrificing one discipline against another. The US, for example, has a long history of the "liberal arts" university degree. But because of the very high proportion of secondary students who go on to some form of higher education in the US, there is still a significant pool of graduates in the more technical disciplines.

The UK education system is indeed crazy. But reducing resources in one area to pay for another will not have the desired effect. What is needed is a general infusion of funds into education at all levels.

That is surely as essential as every pound that is spent on defence.

# Responsibilities

GEC has followed the herd in the electronic sector and reported dismal interim figures for its half-year to September. Profits were actually down, turnover stagnant, and margins, particularly in the company's telecommunication and business systems division, squeezed badly.

Although analysts are rapidly downgrading their profits forecast for the full year, the company still has friends in the City.

The reason is patently clear. GEC's awe-inspiring cash reserves grow inexorably – to £1.477 billion and counting, against £1.117 billion this time last year.

There is nothing wrong with having money in the bank, but cash mountains, like EEC food piles, can go rotten.

There has long been a suspicion that GEC does not have its heart in fundamental research and innovation – a view that will take more than the admirable Series 63 mini, or GEC's involvement in Alvey and Esprit pilot projects, to dispel. GEC still trails the likes of Ferranti and Systime as a computer supplier, which for a company of GEC's resources is quite absurd.

Similarly, it is interesting to see GEC's name linked with Inmos once again. Given Inmos' daring as an innovator, and its profligacy, the mix could not look more unlikely. Perhaps with the perilous state of Inmos' finances, and its lack of credibility in the City, GEC smells a bargain.

GEC is, by market capitalisation, the second largest company in the UK, and it trails only Royal Dutch Shell and British Petroleum in Europe. With that status there come attendant responsibilities – investing seriously in Britain's technological development among them.

Lord Weinstock, managing director of GEC, is said to have the ear of the government. If the government has his ear as well, it might encourage him to put more of GEC's cash reserves back into British industry.

## 1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Les Mercer, of Farnborough, Hampshire, who wins £5.

**Steve Davis' brilliant performance as he took a 7-0 lead over Alex Higgins was too hot for the computerised scoring system to handle. His six breaks of more than 50 not only wilted his opponent but burnt out three minicomputers. The computers cost £300 a time, so Davis' display was hardly a lucky break**

*Cooler*



LETTERS

# In defence of the humble line driver

I MUST take David Street to task over his letter (*Computer Weekly*, November 24) and his comments regarding Fred Jennings' Jensheets.

Basically the information given is correct but the conclusions he draws are somewhat erroneous and I feel I must correct the record and put in a good word for the humble line driver.

Line drivers do require a DC circuit, and British Telecom provides this in the form of the EPS8, an external 4 wire DC circuit. This circuit was designed specifically for the use of line drivers and baseband equipment and consists of two twisted pairs.

Very early non-isolated line drivers did suffer from DC ground loop problems but I know of no BT EPS8 approved line driver which does not have optical coupling allowing the V24 interface and the line interface to be electrically separated – a very effective form of isolation. This together with voltage clamping on the line interface to overcome any line transients associated with atmospheric electrical disturbances provides a very economic answer to short distance data transmission.

The maximum distance that an external BT EPS8 circuit can be provided is usually 11-15 kilometres and normally lies within an exchange area. However, the majority of lines are under five kilometres and any modern line driver should be capable of driving this distance.

All line drivers produced by Dynatech are isolated as are the majority of the line drivers available on the market and although we provide both types of equipment, baseband and line driver, the line driver must be defended. It need not be restricted to in-house operation nor does it suffer from surge problems on the line as suggested. They can be used with equal confidence on in-house or externally provided BT circuits and have no DC coupling-continuity problem.

**ROGER BELL**
**European product marketing manager**

Dynatech
Cheshunt

# Megalithic monster

YOUR views on Ada (*Computer Weekly*, December 1 are nonsense. It will be a disaster if Ada is the basis of real time systems in the 1990s, and the decision to drop involvement with that megalithic monster is to be welcomed.

To adapt Jaroslav Kral's remark (ACM Sigplan Notices, Vol 15 No 2, 1980) an Ada program "might not need any debugging. It will be so long and slow that it will never finish its task". The consequences of implementing defence systems in Ada are best not contemplated. I have always assumed that the reason for its existence lay in the hope that the Russians might copy it and use it for their advance warning system.

**H. R. SIMPSON**

Dunstable
Beds.

# Advertising standards questioned

COMPUTER recruitment advertising standards have plunged to an all-time low. I refer to your edition of December 1 and particularly to page 62 concerning an advertisement under the banner of SMR Limited, an organisation purporting to be leaders in high technology recruitment.

While I accept that attracting good quality sales personnel to recruitment advertising is not the easiest of tasks, I believe, in this instance, that someone's initiative and imagination has been stretched to ridiculous and obscene proportions. Moreover, I accept that having progressed into sales management, many a manager often reflects upon the somewhat easier and more enjoyable days of being on the road and totally in control of his own earnings and job satisfaction.

However, there are many more professional ways of addressing such individuals who may wish to return to a sales function rather than management, without resorting to such crudity as "pratting around with staff" as the consultant put it.

At the best of times, maintaining credibility in our industry is an uphill struggle and advertisements such as this do nothing to enhance the image or reputation of professional recruitment organisations.

The principal of this particular organisation writes editorial for *Computer Weekly* regularly and to my knowledge is somewhat of a literary master. Would he, I wonder, condone such an abuse of advertising standards and such a crude attempt at addressing professional salespeople in the computer industry?

**ANDREW G. CARTER**
**Director/general manager**

Specialist Computer
Recruitment
London W1

# Information on Prime

I AM writing to correct some factual errors concerning Prime's Information in your article, The Richard Pick Award (*Computer Weekly*, November 24).

It is unfortunate that your correspondent was less than fair to the many hundreds of users who have already taken up Information systems on Prime computers.

You state that "Information requires the presence of the Primos operating system and therefore (requires) a large machine to run even a few terminals, and has not sold to date in large numbers."

On the contrary, over 1,300 multi-user Prime minicomputer installations around the world have already discovered the benefits of Prime Information, both as a fourth generation productivity tool and as a vehicle to support commercial application packages. While Information has been actively marketed by Prime in the UK for just one year, almost 50 licences have already been issued.

The implementation does not involve the overheads or inefficiencies implied by your writer. Users on the smallest of Prime's multiuser systems enjoy excellent performance and response times.

More importantly, the combination of Information and the Primos operating system gives them a significant number of advantages.

Information systems can co-exist with traditional Cobol, Fortran and similar applications on the same systems at the same time. Best of all, Information users can exploit the full networking and communications capabilities for which Prime systems are well known.

Prime believes in this type of fourth generation production tool which offers fast application development with low maintenance and makes available to the non-computer professional many report writing and enquiry facilities – and Prime was very early to provide and deliver it.

**MALCOLM HOAR**
**Marketing manager, systems**

Prime
Hounslow
Middlesex

# Welsh technology

IN an interesting article on new technology in Wales (*Computer Weekly*, November 10) you stated that Newtech was a company developing software for BBC microcomputers. This is quite wrong, and I should like to put the record straight. The company to which you referred was Clwyd Technics, which is certainly associated with us. Newtech is Clwyd's new Industrial Innovation Centre, which is engaged on a wide-ranging programme of R&D in fields as diverse as microelectronics and biotechnology.

The Newtech programme, which is rapidly gathering momentum, is thus a much broader operation.

**Dr J. C. ALLEN**
**Dean Research and Innovation**

North-east Wales Institute of Higher Education

# Promoted!

I COMMEND you on *Management Review* (October 27 also for promoting me to the position of general manager in the article Will the micro kill the minicomputer?

As a result of this journalistic inexactitude, your readers who know me in my true capacity of marketing manager may be tempted to send me congratulatory telegrams or Champagne. While the latter will be warmly received, I must ask you to point out that our general manager is John Donegall, who has recently joined us from Data General in Australia.

At the time Paul Walton wrote the article, Dougall was awaiting official confirmation of his UK work permit and was therefore adopting a low profile. This has now been received and your readers can expect to see and read much more of the real DG GM in the future.

**DAVID NEAL**

MPR
London W1

# 100% British

WHILE I much appreciate John Kavanagh's piece on our recent Australian investment, I was concerned to see BIS referred to as "the US services group" in the opening sentence. BIS is, of course, 100% British owned and I would be most grateful if you could inform your readers accordingly.

**B. G. ALLISON**
**Chairman/chief executive**

BIS
London SE1

*A typo – we apologise. – Editor.*

# Scepticism about AI

I AM indebted to Arnold Arnold (*Computer Weekly*, November 10) for encapsulating in a phrase my scepticism about today's endeavours in artificial intelligence. In his review of Chris Naylor's book, Build Your Own Expert System, he writes: ". . . causes and consequences are not amenable to discovery by such means [statistical and probabilistic methods]".

At the Polytechnic of North London Expert Systems Weekend in September, I picked up a leaflet advertising the book. I did not buy a copy because a lot of explanations had already been given in the open sessions.

There are characteristics of the systems described at that weekend, including Chris Naylor's Doctor, which cooled my initial enthusiasm. They operate by probabilities; their decisions rest – are, say, Bayesed – on what seems likely; any references to how things actually work are, at best, implicit or, at worst, ignored entirely. If I follow the advice of these systems then I do something real; there is no way of reducing the statistical significance of a course of antibiotics or of replacing 0.984

Everyday computer systems are successful when their designers have studied the world's realities – its causes and consequences – in enough depth. Their data and processes reflect how things are and how they come about. The failures arise when this insight is missing; no amount of clever programming will paper over the cracks.

The expert systems which I heard described and saw demonstrated at the Expert Systems Weekend lack the touch of a craftsman who really knows how his material behaves. Their builders may be pretenders to the discovery of the Philosopher's Stone . . . gold by numbers is not to be found by these means even if there is some passable brass.

Now I have seen the author's and the publisher's reactions to the review (*Computer Weekly*, November 24) I read the former defending the use of what I have called "clever programming" and the latter the value of "passable brass". Neither of these approaches digs at the roots of my own doubts.

**RICHARD H. PICKARD**

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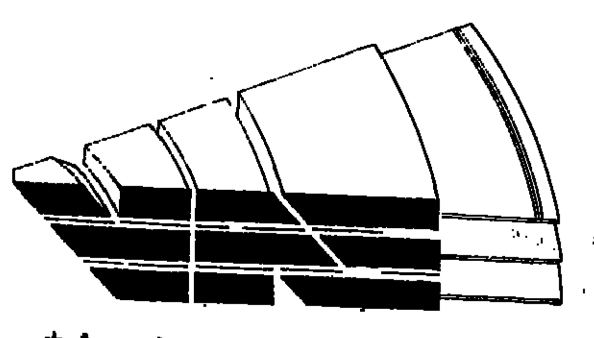

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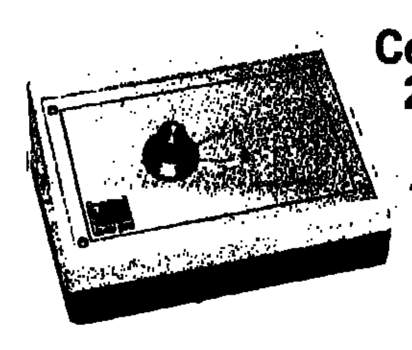

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In the first instance please contact John Goldsmith, quoting Reference Number 421, on 01-631 4184 or write to him at: A & A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1N 5DF.

A&A

(5987)

# YOUR CAREER MOVE FOR 1984

**WEST LONDON** — £9,500-£11,500

## COBOL OR FORTRAN ANALYST PROGRAMMERS

[illegible] are currently programming in a DG, HP3000, [illegible] PRIME, WANG or compatible hardware environ[illegible] excellent career openings exist with a financial services [illegible] very conveniently located in West London. You can [illegible] forward to designing, specifying and developing new on-[illegible] systems which will include a high degree of User commu[illegible] through to systems implementation. Ref. A1

**MID-ESSEX** — c £10,500

## IBM COBOL – ON-LINE DATABASE PROJECTS

Are you seeking on-line and database development project work? If so, you will undoubtedly be interested in the opportunities available with our client, a large successful commercial User based in a very pleasant Essex location. You should possess at least two years' IBM COBOL programming and will be offered training in on-line database software techniques to enhance your technical skills. Excellent career progression opportunities exist with development to an analysis role. Ref. A4

**HAMPSHIRE** — c £10,000-£13,000 (+ Excellent Benefits)

## COBOL ANALYST/PROGRAMMERS (CICS TRAINING)

Several exciting opportunities exist within this rapidly expanding IBM 4341 MVS environment with new development projects scheduled for the next two years. Openings exist at Analyst/Programmer level and a minimum of two years' IBM COBOL is required. Full training in MVS and CICS will be provided if necessary and the company offers excellent company benefits including:– subsidised mortgage, low cost finance and a comprehensive relocation package. Ref. A7

**CITY** — TO £11,500

## BASIC +, RSTS/E, RSX, DEC VAX AND PDP

With around two years' BASIC + or BASIC + 2 on DEC VAX OR PDP [illegible] you could be given the opportunity to perform a challenging design and programming role with our client, a fast expanding financial systems company based in the City of London. The environment is very technically advanced and you will [illegible] be able to keep at the forefront of DEC VAX and PDP [illegible] and software. Ref. A2

**CENTRAL/WEST LONDON** — c £10,000

## CICS TRAINING

Our client, a major User of IBM mainframes and distributed processing systems is now seeking OS/MVS COBOL programmers who will be trained in the use of CICS on-line techniques. The company are a well known international group and systems are developed for use in both the UK and overseas locations. Applicants will need to offer at least two years' IBM COBOL ideally based on structured programming techniques. Ref. A5

**NORTH LONDON** — c £12,500

## FINANCIAL BUSINESS SYSTEMS ANALYST

An additional Analyst is required by a commercial manufacturing company to lead and complement the financial systems development team using the latest ON-LINE DATABASE techniques. The systems will include various business applications, financial modelling and sales analysis. The position will involve considerable User liaison and systems will run on the brand new IBM System 38 and existing System 34's, although previous experience of this hardware is not necessary. Candidates should possess a minimum of three years' business or systems analysis experience and should be keen to join a progressive environment. Ref. A8

**CITY** — TO £10,000 + BENEFITS

## RPGII/III – BANKING

[illegible] national Banking systems provide constant challenge and [illegible] in terms of computer systems development and our [illegible] no exception. With systems already using RPGII on [illegible] they are planning for the development of SYSTEM 38 [illegible] systems. If you can offer around eighteen months RPGII [illegible] programming experience you can expect to develop [illegible] towards systems design and analysis. Ref. A3

**CITY** — £11,000-£13,000

## SYSTEMS ANALYST/DESIGNERS

A large program of mainframe systems development has created requirements for two Systems Analyst/Designers to become members of a team designing and specifying new on-line real-time systems including the use of database software. Candidates will be capable of developing a high level of technical design from business specifications and liaising with both business and technical staff to implement these advanced systems. Ref. A6

**CENTRAL LONDON** — £11,000-£12,500

## CICS, DL/1 ANALYST/PROGRAMMERS

A leading IBM User based in Central London is seeking additional COBOL Analyst/Programmers to join their CICS, DL/1 development team on their IBM 4341 hardware. The organisation is predominantly involved in banking and finance so preference will be given to candidates possessing financial systems experience. Ideally candidates should have a minimum of two years' IBM COBOL experience including some exposure to IMS, CICS or DL/1. The successful applicants will be rewarded with good career prospects, competitive salary and excellent company benefits. Ref. A9

If you are interested in progressing an application for any of these positions telephone now quoting the appropriate reference, for a confidential discussion about your career move for 1984.

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## SENIOR PL/1 PROGRAMMERS

**FINANCIAL SECTOR**

**ATTRACTIVE PACKAGE**

Our client is a leading finance house and a member of a major Group. With systems development proceeding at a healthy rate they would still like to talk to Programmers with a solid (two-three years) background in PL/1. Also of interest are candidates from a large scale OS or MVS environment who have had some exposure to design and structured programming techniques for the development of on-line systems. In return for this kind of experience our company will provide ample scope for personal and career growth with talents and abilities being recognised and stretched. As far as the financial aspects of a future with this particular company are concerned, we believe it will be very difficult to improve or even match the package offered and are confident that successful candidates will enjoy a career that is rewarding in both senses of the word.

## MIDLANDS OPPORTUNITIES

**ALL LEVELS**

**£8-£16,000**

There are currently a wide and interesting range of opportunities for systems and programming staff in the Midlands. We have been requested by our clients to locate SOFTWARE DESIGNERS, SUPPORT STAFF, TEAM LEADERS AND ANALYST/PROGRAMMERS with a minimum of 12 months' commercial experience. The kind of skills required would typically be included in the following: DATABASIC, BASIC, BASIC + or + 2, RSTS/E,RSX11M.VAX VMS, HP3000 and utilities, all IBM. If your career is leading nowhere, or you're bored or in a rut a quick call to our BIRMINGHAM office is needed to arrange a confidential discussion and objective assessment of your potential with no obligation.

## INTERNATIONAL CONSULTANCIES

**ANALYST/PROGRAMMERS**

**£10K-£20K + EXPENSES + TRAVEL**

Several of the larger, well-established consultancies are currently undergoing massive recruitment campaigns. Their requirements are as FLEXIBLE as your needs. If you have any of the following attributes – COBOL, PL/1, CICS, DL/1, VAX/PDP, ADABAS, IDMS, IMS DB/DC, EASYTRIEVE, VOLLIE, ROSCOE, RPG II or III, ADF, TSO/SPF, UFO, MK IV, SHADOW, ADS/O – you could soon be working in this fast and rapidly expanding environment. Obviously the more versatility you can offer our clients, the better the salary they can offer you. At a more senior level, salaries can be up to £20K plus expenses and European travel. These are ideal opportunities for programmers with around two years' experience wishing to expand their knowledge, as extensive TRAINING will be provided. If you're interested in getting out of that day-to-day end-user rut, contact SIMON KONING to discuss these exciting opportunities further.

## PROGRAMMER/ANALYST

**LONDON AND HOME COUNTIES £9-£16,000**

Three of our clients have asked us to identify candidates to help them fill some urgent requirements within their existing DP departments. The first is a MULTINATIONAL ENGINEERING COMPANY that still retains a friendly but hard-working environment. The work falls into two phases and with a GENERAL COMMERCIAL APPLICATIONS background and some experience of ENGINEERING you will have the RIGHT experience. Development work is carried out on a PRIME with FORTRAN, BASIC, COBOL and INFO and other MINI experience would be useful. The positions are LONDON based and the salary range is £10,000 to £12,500. The second is a major ICL site, who have many openings. PROGRAMMERS are needed who can capitalise on their own personal skills preferably with VME 2900, VME/B experience. The work is both interesting and rewarding and depending on skills the salary range is between £8,500 and £16,000. Thirdly REALTIME SOFTWARE and HARDWARE ENGINEERS are required by a very successful manufacturer and systems house. ASSEMBLER skills or GRAPHICS experience with DEC or INTEL is of interest as is experience with PASCAL and "C".

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(7029)

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## IBM

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IBM MVS (NEW YEAR START) SYSTEMS PROGRAMMER
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IBM MVS OPS ANALYST
IBM MVS PL/1 ASSEMBLER ANALYST/PROGRAMMERS
IBM MVS PL/1 CICS ANALYST/PROGRAMMERS
IBM MVS TSO FORTRAN ANALYST/PROGRAMMERS
IBM 4341 MVS/SP LIBRARIAN PL/1 ASSEMBLER PROGRAMMERS
IBM MVS VSAM TSO SPL COBOL PROGRAMMERS, ANALYST/PROGRAMMERS
IBM PL/1 IDMS PROGRAMMERS
IBM MVS COBOL CICS DL/1 TEAM LEADER
IBM MVS SYSTEMS PROGRAMMER
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ICL VME/B IDMS TPMS COBOL PROGRAMMERS AND ANALYST/PROGRAMMERS
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ICL TPMS VME CONSULTANTS
ICL 2900 VME IDMS TPMS PROGRAMMERS (URGENT)

## OTHERS

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HONEYWELL L6 DPS6 SCREENWRITE TPS ANALYST/PROGRAMMERS
VAX 11/780 VISTA, ANY LEVELS
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# your appointments register

## Programmers

- **NCR/IBM/COBOL** — to £15K — Insurance Banking — London H. Counties · N Eng.
- **COBOL/PL1/OS/CICS/IMS** — to £13K — Commercial — H. Counties · Midlands · Manchester
- **BASIC/PASCAL** — to £9K — Civil Engineering/Surveying — Kent
- **ICL/COBOL** — to £12K — Two years' commercial experience — Notts
- **SYSTEMS PROGRAMMERS** — to £10K — Data General/On-line Systems — Cheshire
- **RPG 2/3** — to £14K — Minimum one and a half years' experience — Northants/Leicester/London/N.E.
- **SYSTEMS PROGRAMMERS MVS CICS** — to £17K — Systems experience — Middx
- **BASIC/ASSEMBLER** — to £15K — Mini/Micro Computers — London
- **MINIs** — to £12K — Commercial Applications — Norwich/Croydon
- **IBM VS-FORTRAN/VSAM/ISPF** — to £11K — MVS/TSO — Sheffield

## Analyst/Progs

- **DEC PDP 11 RSTS/E BASIC +** — to £12K — Multi-user Realtime comm. applications — Middx
- **IBM 34/38/4341** — to £15K — London/Home Counties/Leicester
- **ICL 1500/ME29/2903** — to £12½K — COBOL — Essex/Herts
- **IBM DOS/VSE** — to £17K — Database and On-line Systems — Morroco

## Hardware/Support

- **TECH. SUPPORT MANAGER** — to £16½K + CAR — IBM DOS/VSE CICS IDMS — Kent
- **SERVICE ENGINEERS** — to £12K — DEC exp. — London
- **SUPPORT ENGINEER** — to £17K — VAX 780/750 — UK & Europe
- **APPLICATIONS ENGINEERS** — to £14K — Assembler/Micros/Printer Interface — LONDON
- **DEVELOPMENT ENGINEER** — to £14K — Video Terminal Manufacture — Middx.
- **SOFTWARE SUPPORT** — £NEG — Medical/Training/Technical — Berkshire

## Systems Analysts

- **IBM 370/125 4341** — to £11K — Commercial on-line systems — Essex
- **CAD/CAM** — to £16K — Real time · Modelling — Man/Essex/South West
- **IBM/BURROUGHS** — to £15K — Commercial Accountancy — London/Surrey/Manchester
- **VAX/COBOL** — to £15K — Banking applications — London
- **IBM/ICL** — to £14K — Commercial Applications — London/Midlands
- **IBM SYSTEM 34/38 MAAPICS** — to £13K — Sussex

## Software Engineers

- **CORAL/PASCAL/MASCOT/C** — to £15K — Communications — Glos/H. Counties/Midlands/Blackburn
- **ASSEMBLER** — to £12K — 8086/8088 — South London
- **MILITARY SYSTEMS/RADAR** — to £14K — Coral · Mascot — Hants/Surrey/Essex/S. West
- **PDP/VAX/INTEL** — to £16K — High Level Assemblers — in Derby/Surrey/London/Kent
- **COMMS/TELECOMS/MOD** — to £14K — Mini/Mainframe — E. Anglia
- **HP3000/INTEL** — to £12K — CAD/CAM/ATE — Home Counties
- **REALTIME SOFTWARE** — to £16K — Defence/Engineering — Bucks.

## Snr Appointments

- **PROJECT LEADER** — to £15K — Military Systems — Berks/Hants
- **SALES EXECUTIVES** — to £30K — Mainframe — Nationwide
- **CONSULTANT** — to £15K — Military/Defence — Berks
- **SALES MANAGER** — to £25K — Micro Sales exp. — Surrey
- **PROJECT LEADER** — to £15K — IBM System 34 — London
- **DP MANAGER** — to £11½K — Honeywell DPS 6 — Watford
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8086 Assembler with GRAPHICS SB 201

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| CORAL 66, all levels | SC 160 |
| DATAPOINT Datashare Databus Prog./Analyst | SC 104 |
| Hardware/Software Engineers | SC 109 |
| HONEYWELL L6 GCOS, TPS Tech. Support or Systems Prog. URGENT! | DB 162 |
| Honeywell L6 GCOS, Screenwrite or COBOL Progs. | DB 192 |
| HP 3000 COBOL with RAPID IMAGE Progs. | PH 172 |
| HP 3000 Analyst with manufacturing background | KC 181 |
| HP 3000 Quick Quiz COBOL Progs. | PH 213 |
| IBM Assembler Progs. | SC 188 |
| IBM 8100 DPCX or DPPX Progs. | PH 115 |
| IBM CICS Sys. Prog. + Support | CW 208 |
| IBM PL1, some with JSP | DL/DP 116 |
| IBM COBOL IMS DB/DC | DB/DL 120 |
| IBM COBOL CICS DL1 Progs. | |
| IBM OS MVS Systems Prog. | DL 211 |
| IBM System 38 RPG III | SC 127 |
| IBM MANTIS Progs. | PH 159 |
| IBM PL1 IMS DB ADF | DB 224 |
| IBM IDMS Consultant | CW 219 |
| IBM RAMIS Progs. | CW 220 |
| IBM COBOL IMS with ADF | PH/DL 101 |
| IBM DOS/VSE Systems Prog. | DL 216 |
| ICL IDMS Tech Support Cons. | CW 224 |
| ICL TOTAL Analysts | DL 217 |
| ICL VMEB Analyst | PH 218 |
| ICL 2900 VME COBOL, some with TPS | KC 214 |
| ICL TOTAL Progs. | DL 223 |
| ICL PLAN Prog. | DL 222 |
| ICL IDMS Database Analyst | CW 164 |
| ICL Systems 25 Designer and Progs. | CW 133 |
| ICL VMEB IDMS, COBOL, all levels, some with TPMS | PH/CW 134 |
| ICL VMEB COBOL with SCL | PH 136 |
| INTEL 8086 PLM Progs. | DL 212 |
| INTEL PASCAL Progs. | DL 226 |
| Technical Authors | SC 205 |
| TANDEM Analyst/Progs. | PH 184 |
| UNIVAC System 80 RPG II COBOL Prog. | DL 215 |
| UNIVAC 1100 COBOL Analyst Prog. URGENT! | SC 154 |
| VAX Systel COBOL Prog. | DB 209 |
| VAX VMS COBOL with DATATRIEVE | DB 202 |
| Z80 Micro with Assembler & Telecoms | DB 221 |

Contact: STEVE CASEY, PETER HOLLIDAY, CHRIS WHETHERLY, DAVE LONKHURST, KEITH POOLE, DAVID BROWN, KEN COTTOM, SANDRA CAREY, EILEEN CARMICHAEL or HELEN HEARNE

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| IBM COBOL CICS DL1 Progs. | |
| IBM VM/CMS COBOL CICS DL1 Progs. & Analysts | |
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| IBM COBOL ADABAS NATURAL Progs. | |
| IBM COBOL CICS IDMS Progs. | |
| IBM 8100 Progs. | |
| PDP RT11 PASCAL & MACRO 11 Progs. | |
| ICL VMEB Progs., Analysts & Project Leader | |
| ICL VME IDMS TPMS Progs. | |
| MOTOROLA UNIX & C System Prog. | |
| IBM MVS OPERATORS | |
| ICL VMEB SCL WRITERS | |
| **PERMANENT** | |
| Burroughs, COBOL DMS Prog. | RC 1/12 |
| UNIVAC 9000 IMS Senior Prog. | RC 2/12 |
| IBM MVS PL1/COBOL Analyst, A/P & Prog. | RC 3/12 |
| DG AOS Progs., Analyst & Tech. Support | DP 1/12 |
| ICL DME or VME IDMS Analyst | CB 1/12 |
| MICRO FORTRAN/PASCAL Analyst | CB 2/12 |

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- ★ Hardware Maintenance/Digital Technicians

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HP 3000 Op., Hants.
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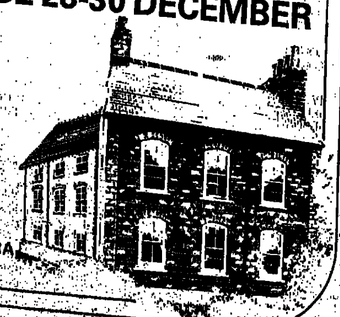

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Rewarding career opportunities for programmers with 18 months+ Honeywell COBOL experience. Your database and on-line experience would be useful, but this is not essential as this prestigious organisation offers extensive training facilities and great prospects. REF. D/W3042

### IBM SYSTEM 34/BANKING £14,000+Perks
Superb opportunity for 1984! Three years+ IBM System 34 RPG II essential, with strong analytical skills, but willing to program where necessary. Occasional European travel, and the prospect of taking over the department. Full benefits package includes subsidised mortgage, cheap loans, etc. REF C/W4027

### JUNIOR RPG II/SYSTEM 36 £8,000 neg.
Can you offer six months+ solid RPG II/System 34 experience? You may be a programmer now or a programmer/operator, this is your chance to move unto an IBM System 36, and get involved with the development of financial/insurance systems, and a network of IBM PC's. Benefits include health insurance and mortgage subsidy. REF. C/W4028

### HEWLETT PACKARD – COBOL To £12,500
Exciting opportunity within a leading London based leisure organisation. They are seeking an analyst/programmer with 18 months+ HP3000 COBOL experience to develop new office automation systems. Lots of analysis work and scope for advancement. REF. A/W4033

### DEC/PDP – BASIC+ 2 £9,500
My client, a leading London based transport organisation, is seeking an enthusiastic, ambitious individual with a solid DEC/PDP, RSTS/E, BASIC+ 2 background. The 'sky is the limit' regarding promotion prospects, it is anticipated that the successful applicant will move into management next year. REF. A/W4034

### DATAPOINT MIDDLESEX £8-13,000
Expanding software house requires programmers with a minimum of 18 months DATAPOINT experience using DATABUS. Great team atmosphere and excellent career prospects for an ambitious candidate. REF. M/W2614

### ICL 2900/VME ALL LEVELS £8-11,000
1984 will be a good year! My client is in the financial sector and requires people at all levels to join their development team. 18 months+ ICL 2900 COBOL is essential coupled with good VME/B or VME skills and some experience of IDMS or TPMS. This is an outstanding opportunity to further your skills and increase your salary in an interesting and stimulating environment. REF. D/W6314

### RETRAIN INTO BANKING £ FIVE FIGURES!
Good VAX BASIC+/BASIC+ 2 experience is required by this City based bureau organisation catering for Banks throughout the world. They offer re-training on their advanced banking projects and plenty of development work. Good prospects for advancement into analysis. REF. A/W2707

### COBOL/CICS CENTRAL LONDON To £11,000
Petroleum company in Central London has formulated its plans for 1984, and requires six programmers and analyst/programmers. Two years IBM COBOL with some CICS and/or DL/1 is essential. MVS is preferred, though they will look at good DOS/VSE people. Four positions will be pure development for at least three years, and two will be support roles, involving extensive user liaison. REF. C/W2970

### SYSTEMS ANALYSTS/ESSEX To £14,000
Because of increasing demand for new systems, I have two clients wishing to recruit a number of analysts to work on the design and development of financial and commercial systems. These are challenging positions with excellent career opportunities. If you have over two years analysis experience, and have taken at least one project from design to implementation, I would like to hear from you. REF E/W3099

### IBM SYSTEM 38 £9-13,000
I have opportunities for 1984 in Middlesex, Bucks and Central London for analyst/programmers and programmers with 18 months+ RPG III experience, wishing to increase their salaries and promotion prospects. For a new challenge in the New Year please ring me. REF. C/W2221

These positions are just a brief selection from our extensive database of jobs in London and the South-East. If you cannot see a position advertised for your particular skills, or are considering re-locating or a change of hardware, a quick 'phone call will put you in touch with a consultant specialising in your field. 70% of jobs in this industry are never advertised. Why not let us tell you about some of them? We look forward to hearing from you.

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(6998)

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**ESC Software S.A.**
Attn. Mr. Daniel Lancry
Avenue Louise 250, Bte. 113 - 1050 Brussels, Belgium
Hobbs · Brussels · The Hague · London · Stockholm · Paris · Dusseldorf · Munich · Zurich · Milan · Rome · Madrid

(7021)

## TECNODATA OVERSEAS (FAR EAST)
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## SENIOR SYSTEM ANALYST

5-8 years' IBM, minimum 3 years' MVS/JES experience. Applications Analysis/Design.
On-line/Data Bases and knowledge of IMS/ADF, ADABAS/Natural, IDMS preferred. Ability to lead and motivate his team essential.

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3-4 years experience in a DOS/VSE environment. Knowledge of CICS, DL1, VM/CMS essential.

Both positions are for initial one year contracts. Excellent salary packages are offered to suitable candidates which also include:
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- Company car
- Return air fares
- Married status
- Child education allowance
- Excellent leave allowance

Interviews to be held in London early January.
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Cleveland

(7024)

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### SYSTEMS PROGRAMMER — ESSEX
Must have good VAX experience with current practical working knowledge of VAX System Services, FORTRAN AND MACRO 32. Simulation Software design and implementation experience preferred but not essential.

### COMMS/CONSULTANT
Knowledge of TELEPHONY preferred but not essential. Should have at least five years' in industry and a sound knowledge of microprocessor machine architecture and hardware interfacing techniques as well as being proficient as a Software Consultant.

SCOM
Please contact either Paul Roebuck or Lawrence Mills
**Computer Systems Engineers Limited**
Tower House, High Street, Aylesbury, Bucks Tel. 0296 32023
Evenings after 7pm or weekends 0296 33059

(6866)

# BUTEL BUSINESS SYSTEMS

Butel Business Systems is a medium-sized Software/Systems House, on target for a £2 million turnover this year. Since our establishment in 1978 we have achieved considerable success in the sale and implementation of turnkey projects and in package development. Now, continuing progress presents a number of excellent career opportunities for true computer professionals

**Sales Consultants**
*Target earnings: circa £23,000 + Car + BUPA*
We need experienced sales people, or systems people with sales ambitions. You will be selling the full range of Butel products and services, from micro-networks to 32-bit superminis, financial modelling (EPS-FCS) and packaged software covering a wide spectrum of commercial applications. Our suppliers describe us as 'the most sales orientated systems house around', which means you will be encouraged in every way to meet and exceed, your targets.

**Systems Consultants/Project Managers**
*£10,500-£14,000 + Car + BUPA*
Experienced System Analyst with proven commercial experience of on line and/or database systems? Experience of project management on at least one significant project? Then there are opportunities for further personal development in an exacting Software House environment, with the latest 32-bit supermini technology, in a wide variety of applications. If you have expertise in DG INFOS/DBMS, HP TOTAL/IMAGE, etc., these vacancies will be of special interest.

**Senior Programmer/Analysts**
*£9,500-£12,000 + Car + BUPA*
Extend yourself and develop your career as a commercial programmer/analyst. You must have proven commercial COBOL experience, preferably in interactive environments. And you must have a willingness and the ability to deal directly with clients.

**COBOL Programmers**
*£7,500-£9,500 + BUPA*
This is an ideal opportunity for young COBOL programmers (minimum 18 months experience) to enter a fast moving commercial environment. Excellent career development opportunities and the latest software technology.

**IMPORTANT — All of the positions advertised will be located West of London. In the first instance write with CV, or telephone, the London Office below.**

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Technical Vacancies: Ray Sparrow, Systems Director. (6890)

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Technology for business

Butel Business Systems,
Garrick Industrial Centre, Garrick Road,
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# Computer Services Manager

**Salary range: £22,880 to £24,590 per annum.**

The North Eastern Electricity Board invite applications for the post of Computer Services Manager at their Board Headquarters located at Carliol House in the centre of Newcastle upon Tyne.

The Computer Services Manager is responsible to the Secretary for advice on the application of computers throughout the Board and for ensuring that the requirements of all user groups are integrated into the Board's overall plan. The successful applicant will be responsible for controlling and co-ordinating all aspects of Computer Services, including systems analysis, programming, technical development and operations, and for evaluating the costs and benefits of proposed systems and new computer techniques.

The Board's installation is soon to be based on a dual ICL 2966 32 megabyte machine and a single ICL 2966 16 megabyte machine. There is a rapidly growing terminal system with over 200 video terminals operating through network processors to the mainframe. The applications are wide ranging, some using database management systems with on-line data entry facilities.

The successful applicant will have had extensive responsible experience within a computer installation and will need to show high qualities of management, both in the Computer Services Section and in the Board at large, in effectively co-ordinating the requirements of all users.

Applications by letter endorsed 'Computer Services Manager' should be addressed to the Personnel Manager, NEEB, Carliol House, Newcastle upon Tyne, NE99 1SE, so as to be received by 30th December, 1983.

(This post is open to both male and female applicants).

NEEB
ELECTRICITY

DENTAL ESTIMATES BOARD, EASTBOURNE

## CHIEF SYSTEMS DESIGNER (SYSTEMS MANAGER)

**SALARY SCALE: £10,393 TO £12,615 + ADP ALLOWANCE OF UP TO £554 P.A.)**

The Dental Estimates Board for England and Wales require a Chief Systems Designer (Systems Manager).

Applicants should have had experience at management level within a computing department responsible for the maintenance and development of a wide range of applications. Experience of mainframe ICL equipment would be desirable but is not essential.

Health Service conditions of service and superannuation arrangements apply to this appointment.

Further details and a form of application may be obtained from the Clerk to the Board, Dental Estimates Board, Eastbourne, East Sussex BN20 8AD (0323 25552). Closing

# CONTRACTS

## IBM

| | |
|---|---|
| 3083 SAS AND/OR PL/1 ANALYST/PROGRAMMER | MIDDX |
| UNIPAY & UNIPERSONNEL ANALYST | MIDDX |
| 4331 OS/VS1, CICS, ROSCOE SYSTEMS PROGRAMMER | HERTS |
| 4341 'INQUIRE' COBOL ANALYST/PROGRAMMER | KENT |
| SYSTEM 38 RPG III PROGRAMMER (BANKING EXPERIENCE) | LONDON |
| SYSTEM 38 RPG III PROGRAMMER (FEBRUARY START) | KENT |
| SYSTEM 38 RPG III ANALYST/PROGRAMMER (FEBRUARY START) | KENT |
| MVS SYSTEMS PROGRAMMER | SURREY |
| DOS/VSE SYSTEMS PROGRAMMER | SURREY |
| IBM 4341 TO WANG VS100 CONVERSION ANALYST/PROGRAMMER | SOUTH LONDON |

## ICL

| | |
|---|---|
| ME29, 2903 TME COBOL ANALYST/PROGRAMMER | CITY |
| VME 2900 TOTAL, SCL TPS PROGRAMMER | SURREY |
| VME 2900 TECHNICAL SUPPORT | SOUTH LONDON |
| VME 2900 IDMS, TPMS COBOL PROGRAMMERS | BIRMINGHAM |
| VME 2900 IDMS, COBOL PROGRAMMERS | SOUTH COAST |
| VME 2900 TPMS & IDMS COBOL PROGRAMMERS & ANAL./PROGS. | ALL AREAS |

## OTHERS

| | |
|---|---|
| "PAPERLESS OFFICE" ANALYST/PROGRAMMER | MIDDX |
| TANDEM ANALYST (BANKING EXPERIENCE) | LONDON |
| TANDEM COBOL PROGRAMMERS | LONDON |
| JSP COBOL (GAIN TANDEM TRAINING) | LONDON |
| ELECTRONIC OFFICE SYSTEMS ANALYST/PROGRAMMERS | MIDDX |
| REDIFON EDITOR PROGRAMMER WITH VIEWDATA | ESSEX |
| UNIVAC 1100 COBOL PROGRAMMER (BANKING EXPERIENCE) | ESSEX |
| INTEL MDS ASSEMBLER PROGRAMMER | WEST SUSSEX |
| PDP RSX11M CORAL 66 & MACRO 11 PROGRAMMER/ANALYST | SUSS. |
| VAX, VME SOFTWARE PROGRAMMERS WITH PASCAL & 'C' | BERKS |
| DATA GENERAL BUSINESS BASIC PROGRAMMERS | WEST LONDON |
| DATA GENERAL, AOS, INFOS COBOL PROGRAMMERS | N.W. LONDON, HANTS |
| DATA GENERAL, CS COBOL PROGRAMMERS | N.W. LONDON, HANTS |
| HP 3000 RAPID PROGRAMMER | LONDON |
| HP 3000 COBOL PROG. (18 MONTHS TOTAL PROGRAMMING EXP.) | LONDON |
| PRIME 'PICK' PROGRAMMER | SURREY |

**For details of these and other on-going requirements please contact Lorraine, Wendy or Tony at KPG, or contact Lorraine on Walton-on-Thames 245662 (evenings and weekends).**

## ENGINEERING

| | |
|---|---|
| RF DESIGN ENGINEER | SUSSEX |
| DIGITAL DESIGN ENGINEER | SUSSEX/SURREY |
| ELECTRONIC COMMS. ENGINEER | SUSSEX |
| ANALOGUE ENGINEER | SUSSEX/SURREY |
| TEST EQUIPMENT ENGINEER | SURREY |
| PROCESS CONTROL ENGINEER | SURREY |
| SOFTWARE ENGINEER | SUSSEX/SURREY |
| COMMISSIONING ANALOGUE ENGINEER | SURREY |

**Contact Lynne at KPG or on 01-543 4140 (evenings and weekends).**

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| IBM | ICL | OTHERS |
|---|---|---|
| COBOL, MICHAEL JACKSON<br>COBOL, IMS DB/DC<br>COBOL, IMS DB/DC, ADF<br>COBOL, CICS<br>COBOL, CICS, DL/1<br>RAMIS<br>COBOL, IDMS | SYSTEM 25, ASSEMBLER<br>VME, COBOL, IDMS, TPMS<br>CIS-COBOL<br>COBOL, TPMS<br>COBOL, MICHAEL JACKSON | HONEYWELL DPS6, SCREENWRITE, TPS, COBOL<br>HONEYWELL DPS8, COBOL, TP, DM1V<br>HONEYWELL DPS7, IDS, TDS<br>PDP 11, BASIC, MACRO 11, RSX 11M, Real-Time<br>PDP 11, PASCAL, PROCESS CONTROL<br>VAX, MACRO 32, FORTRAN<br>INTEL MICRO'S ASSEMBLER, Real-Time (7011) |

*Contact Jackie Lyons or Lesley Eley*

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Prog | CICS/TOTAL | | Wilts | MVS | A Prog | CICS | PL1 ASSEM | S Coast |
| | Various | CICS/DL1 | ±COBOL | Various | MVS | Progs | CICS/DL1 | COBOL | Sussex |
| | Snr Anal | CICS/IDMS | | Kent | MVS | Prog | TSO SPF | PL1/BAL | Berks |
| | Progs | DL1 | COBOL | North | VM/CMS | Sys Prog | VSAM | ASSEM | Kent/Surrey |
| | Prog/A Prog | MANTIS | ±COBOL | Various | VM/CMS | Prog | DL1 | PL1 | Essex |
| | Sys Anal | UNIPAY | | Berks | VM/CMS | A Prog | VSAM | PL1 | Sussex |
| | A Prog | FOCUS | ±PL1 | London | SYS 38 | Progs/Ana | MAAPICS | RPG III | Various |
| MVS JES 3 | S/W Prog | | | S Coast | | Progs | | | |
| MVS | A Prog | IMS DB DC | COBOL | Lond & Hants | 8100 DPPX | A Progs | | COBOL | Sussex |
| MVS | Prog | IMS DB DC | PL1 | London | DOS | Prog | | RPG II | Berks |
| MVS | A Prog | ADF | PL1 | London | IBM PC | Sys Anal | LOTUS | BASIC | Sussex |
| | | | | | | Bus/Sys Anals | | | Sussex |
| | | | | | BURRS | A Progs | DMS II | COBOL | Scotland |
| | | | | | BURRS | Progs | DMS II | COBOL | H Counties |
| | | | | | DATAPOINT | | | DATABUS | London |
| | | | | | DEC PDP | Prog | | FORTRAN | Sussex |
| | | | | | DEC PDP | Anal/Prog | | BASIC+2 | Scotland |
| | | | | | DEC | A Progs | MASCOT | CORAL 66 | S Coast |
| | | | | | DEC | A Progs | ±SASD/ MASCOT ±DATATRIEVE | RTL/2 | Surrey |
| | | | | | DEC PDP | Prog | | BASIC+2 | Various |
| | | | | | DATA GEN | Op Super | | | N'hants |
| | | | | | H'WELL DPS4 | A Prog | IPS TPS | COBOL | London |
| | | | | | ICL 2900 | Progs | IDMS/TPMS | COBOL | Various |
| | | | | | ICL ME29 | A Prog | TPS | COBOL | Sussex |
| | | | | | INTEL 8085 | A Prog | | ASSEM | Bucks |
| | | | | | | S/W Eng | | ±PL/M | N'hants |
| | | | | | INTEL 8086 | S/W Eng | Comms Exp | ±CORAL 66 | Surrey |
| | | | | | | Sys Des Eng | | | |
| | | | | | INTEL 8086 | A Progs | | ASSEM | Surrey |
| | | | | | UNIVAC V77 | Sys prog | | ASSEM | London |
| | | | | | UNIVAC+HP | Anal | | | Hants |
| | | | | | UNIVAC | Consultant | UNIS | | Middlesex |
| | | | | | REDIFON | Prog | VIEWDATA | | Essex |

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## COMPUTER MANAGER c. £13,000
### HP 3000/RPG II

Expanding International company based in London requires a manager to take control of their small computer department. Applicants should have over four years D.P. experience which must include a thorough understanding of RPG II and preferably some HP 3000 exposure although training may be given where necessary. As well as an excellent starting salary the company offers free medical insurance, 22 days holiday and the probability of a company car after a qualifying period.

## SYSTEMS MANAGER c. £11,000
### BCL MINI

Company based in N. London seek a Systems Manager to both install a BCL MOLECULAR 18 mini computer and take existing systems away from a software house. Applicants should have good knowledge of ASSEMBLER or other similar machine code language, be able to work on their own and be good communicators. Obviously any previous BCL exposure will be of particular interest. Systems being implemented initially include sales and purchase order processing but many other applications are planned for the future.

## COMPUTER MANAGER c. £10,000
### HONEYWELL L6

Installation based in Bucks. seek an Analyst/Programmer who is looking to move into a managerial position. Applicants should have knowledge of HONEYWELL L6 with either COBOL or SCREENWRITE gained in any commercial environment. They should also be able to work on their own initiative and preferably had some client contact experience. Perks include discount on company goods, non contributory pension scheme and 22 days holiday.

## ANALYST/PROG £10,000
### DATABASIC

A rapidly expanding software house is currently recruiting Analyst/Programmers with a minimum of one and a half years DATABASIC gained in a PRIME or CMC environment. The software house actively encourages employees to service clients in a consultancy role therefore applicants should be presentable, confident and have the ability to deal with first time users. The client can offer job satisfaction, regular salary reviews and intensive training.

## PROGRAMMER £7,000
### RPGII

London based site require a programmer with one year's commercial RPGII. The hardware is WANG but any hardware will be considered. Applicants should have standard accounting knowledge i.e. General Ledger, Purchase Ledger, etc. and any manufacturing exposure would be of special interest. This site will offer the successful candidate rapid progression into analysis.

## ANALYST/PROG £10,000
### RPGII/III

An international bank has identified a requirement for an Analyst/Programmer with a solid GSD background. They have recently upgraded from a 34 to a 38. Applicants should have at least one years programming with some systems experience in a GSD background (RPGIII would be of special interest). As well as a good starting salary a standard banking benefits package applies.

## ANALYST/PROGS to £14,000
### VAX/IBM

Rapidly expanding company, a market leader in their field, based in S.W. London seeks several Analyst/Programmers to join their development teams utilising VAX and IBM equipment. A minimum of 18 months COBOL gained in a DEC or IBM environment is required. This is a good opportunity to work on a variety of projects and offers successful candidates very good career prospects with a generous company benefits package.

## SENIOR ANALYST £13,000 + CAR
### ICL

Our Client, an internationally renowned concern based in Berks., urgently requires an experienced Systems Analyst to take a major role in the development of new systems. Ideally applicants will have a financial systems background gained in an ICL environment using IDMS techniques. The position will also involve the control and management of analyst/programming teams. Those benefits normally associated with a large company are augmented by a company car.

## ALL LEVELS to £14,000
### ICL COBOL

A growing Essex based company, heavily committed to major developments of financial systems on ICL 2900/VME systems, is seeking experienced ICL people at all levels. Progs. and Analyst/Progs. should have 18 months or more COBOL experience, the latter with some formal analysis. Analysts and above will have at least two years' systems exposure. These positions attract a generous company benefits package including an excellent profit share scheme.

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Brussels Office: Rue Gatti de Gamond, 24. Ucde 1180 Brussels. Tel: 010 322 377 4193.

# PUBLIC SECTOR APPOINTMENTS

PERSONNEL AND MANAGEMENT
SERVICES DEPARTMENT

## IBM SYSTEM 38

## SENIOR SYSTEMS ANALYST

**£9,060-£10,539**

An experienced Analyst is required to work as part of an enthusiastic team currently engaged on transferring systems to a SYSTEM 38

You will need a minimum of two years experience of RPG III and the ability to implement systems quickly. Local Government experience is not essential

New development areas have been identified which will include word processing and personal computing

For an informal discussion please contact Mr Ray Witty on Bath (0225) 61111 ext 210

Relocation benefits include assistance with removal, settling in, house purchase and lodging expenses

Application form and further details from the Personnel Department, 8A Terrace Walk, Bath BA1 1LW
Telephone Bath 61111 Ext 468
Closing date 30 December 1983

Bath City Council

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UNIVERSITY COLLEGE LONDON

## CHIEF SYSTEMS PROGRAMMER

TEAM LEADER required for the Computer Centre Systems team. The Centre runs a service based on linked GEC 4190 computers and associated local and wide area networks. Several years' working with operating system software and some supervisory experience are essential. Salary in range £12,346-£15,311 inc. London Allowance, according to qualifications and experience

**Full c.v. with names of two referees to the Computer Manager, University College London, Gower Street, London WC1 6BT, or telephone 01-388 6721 for further details**

(6986)

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IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

## MACHINE SUPERVISOR/PROGRAMMER

required to work in the Administration Data Processing Unit. The duties include the oversight of daily operational schedules and control of operators' activities, the writing, coding and testing of programs

A good educational background is essential. Candidates should have a knowledge of DEC equipment and have had several years' working experience as a programmer (COBOL or BASIC) and as an operator

Salary in range £6310-£9976 plus £1186 London Allowance according to qualifications and experience. Five weeks' annual holiday.

Further particulars from the Personnel Secretary, Imperial College of Science and Technology, London SW7 2AZ. Closing date for receipt of applications is 9 January 1984.

(6996)

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SOUTH OXFORDSHIRE DISTRICT COUNCIL

## SYSTEM CONTROLLER

**c. £8,200**

A progressive and exciting local authority which is going places with systems seeks a System Controller who will be responsible to the Project Controller (SOLAPS) for the operation of a Prime 750 installation running a graphics map based GDS information system. Primos experience in a multi user site is an essential requirement.

Conditions of employment are excellent and relocation assistance will be given if appropriate.

For job description plus application form telephone Ray North, Assistant Treasurer (0491) 35351 ext 3511 or write to PO Box 22, Crowmarsh, Wallingford OX10 8HH.

(7000)

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PUBLIC HEALTH LABORATORY SERVICE BOARD

## COMPUTER OPERATIONS CONTROLLER

**Scale 9. Salary Scale £8990 to £10900 inclusive of London Weighting**

required at the Headquarters of the Public Health Laboratory Service in Colindale, London. You will be responsible for the management of computer operations at Colindale and actively involved in the detailed planning and implementation of the re-siting of existing equipment in a new building scheduled for completion at the end of 1984. Some travel to provide assistance and advice to other PHLS laboratories distributed throughout England and Wales will be required.

Two years' experience in a supervisory role and knowledge of on-line systems and data communications are essential and knowledge of CTL mini computers would be advantageous.

As a senior member of a small team a high degree of personal enthusiasm and commitment is essential.

**Application forms, job description and further particulars are available from the Personnel Officer, Public Health Laboratory Service Board, 61 Colindale Avenue, London NW9 5EQ, tel: 01-200 1295 ext. 40.**

Closing date: 6 January, 1984.

(6971)

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UNIVERSITY OF CAMBRIDGE
COMPUTING SERVICE

The Cambridge University Computing Service provides a range of services to the University and to many [illegible] institutions in the UK. The main facility consists of an IBM 3081D supporting a large user [illegible] range of applications. Other services include networking, microprocessor support [illegible] service. There is one vacancy for a well-qualified and experienced [illegible]

## COMPUTER ENGINEER

[illegible] team involved in the design, construction and maintenance of computing and data-communications equipment, both within the Computer Laboratory and in other departments of the University. The work is varied and offers excellent scope for diagnostic ingenuity

[illegible] appointment will be to a Computer Officership in Grade III or Grade IV on salary scales between £8,748 to [illegible]

Further particulars may be obtained from the Acting Director of the University Computing Service, [illegible] Laboratory, Corn Exchange Street, Cambridge CB2 3QG. The closing date for applications is [illegible] January 1984

(6981)

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Inner London Education Authority

BRIXTON COLLEGE
56 Brixton Hill, London SW2 1QS

BUSINESS STUDIES DEPARTMENT

## LECTURER II — COMPUTER STUDIES

A computer professional is required as a Lecturer II in a young, fast-growing computer section at the college from January 1984, or as soon as possible. THIS IS A RE-ADVERTISEMENT.

The person appointed will be required to contribute to the teaching of computer awareness throughout the college and specifically to develop BTEC Computer Studies.

Applicants should possess relevant professional qualifications and/or experience. The possession of a teaching qualification would be an added advantage but is not essential as facilities for teacher training would be provided.

Salary on an incremental scale within the range £7,215 to £11,568 including £987 Inner London Allowance — starting point depending on qualifications, training and experience.

**Application forms available from the college (tel. 01-737 1166), or from the Applications Secretary at the above address (Ref. 68 25).**

Closing date for receipt of applications — January 6th, 1984.

ILEA is an Equal Opportunities Employer

(6983)

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bct

Brighton College of Technology
Formerly Brighton Technical College
Principal L.H Farnsworth OBE, MA, BSc

FACULTY OF ENGINEERING

## SENIOR LECTURER IN MICRO ELECTRONICS (REAL-TIME PROGRAMMING)

£10,683-£13,443 (Ref: 554)

Required as soon as possible to teach mainly on a new full-time course in Real-Time Programming leading to a TEC Higher Certificate. Applicants should be graduate and/or Chartered Engineers and experienced in both hardware and software aspects of microcomputer systems. Hardware knowledge of 16-bit systems as well as 8-bit systems is desirable. High-level languages offered should include Pascal, together with some knowledge of operating systems.

Relocation grants available in approved cases.

**Details from Principal, Brighton College of Technology, Pelham Street, Brighton BN1 4FA. Telephone: (0273) 685971. Closing date 10 days from this advertisement.**

(6984)

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LONDON BOROUGH OF HOUNSLOW

## Technical Assistant (Communications)

**Scale 6/PO1(D)**
**£8,751-£11,649 inclusive**

An additional person is required within the Technical Support Group of the Computer Division to be mainly concerned with the introduction and eventually the daily supervision of the Council's recently ordered Libraries' System Mini-Computer. The successful candidate should have at least four years' experience in Computer Operations, a good understanding of Data Communications Procedures, Line/Modem Protocols and Network Problem Determination. This post is not subject to shift working, however there may be a requirement for occasional Saturday duty and time would be given in lieu.

Further details can be obtained from David Evans on Ext 3126 or write for an application form (closing date for return being 30.12.1983) to the Data Processing Manager, Civic Centre, Lampton Road, Hounslow TW3 4DN.

An equal opportunity employer

(6995)

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UNIVERSITY OF LEICESTER MEDICAL SCHOOL

Applications are invited for the post of

## RESEARCH ASSOCIATE (APPLICATIONS PROGRAMMER)

This post will be concerned with the development of software for clinical and preventive medicine programmes in the hospital and community. Much of the work will be in the health service setting so a knowledge of MUMPS would be advantageous. In addition, the solution of such hardware problems as networking of micros and the relationships of such systems to mainframes will be a small, but important part of the job.

Salary on the 1A range, £7,190-£11,615.

Further details and application forms can be obtained from Professor M. Clarke, Department of Community Health, Clinical Sciences Building, Leicester Royal Infirmary, P.O. Box 65, Leicester, LE2 7LX.

Closing date for applications 2 January 1984.

(6987)

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BIRKBECK COLLEGE
(University of London)

## COMPUTER PROGRAMMERS

Two vacancies exist in the College Computing Services which operates a network using a GEC Switch and a VAX 11/750 running VMS and providing a local front-end to the University Network and its main hardware (Amdahl V8, Cray 1S, etc.) in addition to local computing. They are for:

1. A Senior Programmer/Adviser to provide expert advice and assistance on the local file and data management software (VAX Codasyl dbms, Data Dictionary, etc.) for data administration (integrity, availability, dump and recovery and allocation strategies), and for user advice in making efficient use of allocated space (data compression, etc.). At least five years' experience, two in some area of this work is required and ability to assume full responsibility for Data Administration in due course. Salary on scale £12346 to £15311 (inclusive of London Weighting).

2. An Applications Programmer to assist users and develop applications software particularly related to the Amdahl and the Cray. Programming will be mainly in Fortran. An ability to produce clear documentation and to work in close liaison with users is required. Salary on scale £8376 to £12801 (inclusive of London Weighting).

Application forms from the Assistant Secretary (Personnel), Birkbeck College, Malet Street, London, WC1E 7HX (telephone 01-580 6622, ext. 529) or apply with full c.v. in duplicate and names of two referees.

(6999)

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LEWISHAM & NORTH SOUTHWARK HEALTH AUTHORITY

## MICRO ANALYST/PROGRAMMER

Lewisham and North Southwark Health Authority have several computer developments in progress and have many applications already well established. The use of computing in the Authority is expected to expand rapidly over the next few years.

There is a vacancy in the District Computer Services Unit for an Analyst/Programmer to work on microcomputer data collection and management reporting systems for diagnostic and other support departments. Applicants should have experience of developing applications on micros, running CP/M and database software. Familiarity with other micro operating systems and micro networks would also be an advantage.

Salary £7,404 p.a.-£9,02? p.a. + £1,042 p.a. London Weighting.

For further details please contact the Personnel Officer, Guy's Hospital, London, S.E.1. Telephone 01-407 7600, ext. 3479. Please quote ref: A/10.

(7030)

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Suffolk County Council

Highways Department

The following staff are required as a result of the restructuring of the Technical Services Group to meet the demands of Direct Labour Organisation legislation, and to further the introduction of Information technology systems.

*For the Development Team:*

## SENIOR ANALYST/PROGRAMMER

Post H81

**Grade SO2: £9,945-£10,539 p.a.**

Applicants should preferably have a degree or equivalent qualification in Computer Studies or similar numerate discipline, be a member of a professional body, and have at least 4 years experience in programming and analysis in an engineering or scientific field.

## ANALYST/PROGRAMMER

Post H79

**Scale 6/SO1: £8,154-£9,660 p.a.**

Applicants should preferably hold an HNC in Computer Studies or equivalent qualification in a numerate discipline and at least 2 years experience in programming and analysis in an engineering or scientific field.

*For the Support Team:*

## TECHNICAL ASSISTANT

Post H63

**Scale 4: £6,264-£7,005 p.a.**

The post holder will initially be appointed on a two year temporary contract renewable subject to review. The appointed person will be responsible for providing support and monitoring the day-to-day use and operation of the Department's Computer resources both applications and systems, hardware and software, to meet the Department's data processing requirements, particularly those in remote Area offices. Applicants should preferably hold an HTC or equivalent qualification and have 3 years experience in Civil or Highway Engineering design or maintenance, and hold a current driving licence.

The County has a dual ICL 2972 mainframe computer serving an extensive terminal network. The Department additionally has a Prime mini-computer, several microcomputers, together with Tektronics and Benson equipment for graphics.

Generous relocation expenses payable in certain circumstances.

**Further details and application forms obtainable from The County Surveyor, St Edmund House, Rope Walk, Ipswich IP4 1LZ, tel. Ipswich 55801, ext. 6309, returnable by 21st December 1983.** (6927)

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## P.A. to Chief Executive

**World-wide responsibility for a DP Philanthropist**

Our client is chief executive and sole owner of a unique organisation which distributes a wide variety of consumer goods to the home market on an annual basis.

This new part-time post is a direct result of the rapid expansion in the home computer and related markets. Prime responsibility will be to identify reliable computer manufacturers; manage a temporary team of goblins employed on an on-line packaging system handling 2 million bits a second utilising Elves under Santa; schedule an efficient distribution network and control a team of reindeer.

Knowledge of low-level languages, HOHO IMAGE and a high degree of elf-motivation are essential.

The post offers an enormous and stimulating challenge plus the opportunity to spread a little happiness world-wide. The rewards are immense and intangible, but will include a cabbage patch doll.

Please write with full details to: IVOR MICRO,

HAY-MSL

SELECTION & ADVERTISING

17 Stratton Street, London W1X 5DB.

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ST. THOMAS' HOSPITAL
LONDON SE1 7EH

SHARPEY-SCHAFTER CENTRE

## COMPUTING IN PATHOLOGY LABORATORIES

Applications are invited for two posts of Programmer/Analyst in the Department of Computing Science. Candidates should hold a degree or equivalent qualification and have experience in FORTRAN and Assembly Language programming.

Successful candidates will initially join a small and highly active team working on the production of an integrated, portable computing system for use in pathology laboratories. They will be responsible for designing, writing and documenting programs for the capture of laboratory results and the production of clinical reports.

Salary on a scale rising to £10,067, including London Allowance. An additional ADP Allowance of £277 or £554 may be paid for appropriate experience.

**Application forms and further details are available from the Personnel Department, St. Thomas' Hospital, 01-928 9292, ext. 2522.**

**For an informal discussion, please ring Neil Bone on 01-928 9292, extension 2110.**

Closing date for completed applications: 21 December 1983.

(6940)

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## BOX NUMBERS

Box number replies should be addressed to:

Box Number ..............................

c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

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# SMR

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for sales people who already have a proven record of success in selling computer equipment into mainframe installations. IBM experience will be particularly useful. In return we offer a very attractive compensation package, including company car, company pension, etc., with a high basic salary and real possibilities of high earnings

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We will also provide 3 weeks training shortly after joining, at our overseas training centre. Contact us **now** and join in time for our new launch in the Mediterranean.
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(7014)

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London W1. (01) 734 9776

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Lichfield, Staffs. (05432) 56612

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*A significant development in the field of telecommunications*

## *Team Leader Software Facilities*

*to £15,000*

*Our client is a major organisation in the telecommunications industry, their new undertaking will ensure they maintain their existing lead in a competitive market.*

*They now seek a senior software designer who has experience of tool development using the UNIX operating system to lead a small team, responsible for developing the software tools and utilities for this important project.*

*A rare opportunity to use your existing skills in a demanding, interactive role.*

*You must be an effective problem solver, able to communicate well and to operate in a user liaison capacity. Educated to degree level, you will probably be in your mid to late twenties.*

*The company benefits are attractive with generous provisions for relocation if appropriate.*

*Telephone for an application form or write with a full CV to: Sally Grice, Technological Resources, Philip House, 8, Ravenswood Road, London SW12 9PJ. Tel: 01-675-5051. Please quote Ref. 235*

TECHNOLOGICAL RESOURCES

*MANAGEMENT SELECTION CONSULTANTS*

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***SALES BIT***

# A new job for the new year

STEVE sat marooned on a bottle-cluttered desk, the debris of determined merriment all around him. His legs swung idly to and fro, at odds with the tempo of the driving disco sounds, which dominated all but the occasional shriek from the temporarily decadent secretaries who were experiencing that two sherries, five Pernods and a very large Bacardi and coke could eradicate all inhibitions or propriety, hitherto assumed by the less perceptive members of the sales department.

It occurred to him that he ought to be enjoying himself, but he wasn't. On previous occasions the office Christmas party had been great fun. Masks were lowered, true selves were revealed; even the managing director came down from his pedestal and had a dance with the tea lady.

Last year Steve had really got to know that attractive and seemingly aloof lady from the personnel department. It was then that he discovered that their new found affinity would be short-lived, as that was her final day with the company. She had decided upon a challenge elsewhere.

### They both knew it was a lie, but Bill understood

Now he was in the same position. Now he knew what she meant when she said she felt like a stranger among people she had known for years. Last week they had all been his colleagues, his partners in that unending quest for identifying business opportunities and making the sale; enthusiasts together in the gentle art of giving people your own way. Yet now they were his competitors.

He still wasn't really sure why he had applied for the job in the first place. He just happened to be reading the Sales Bit and it caught his eye across the other side of the page. It was him exactly; right job, right money, right location.

In other circumstances he would have registered it with interest and as quickly forgotten it. But it was one of those days that salesmen sometimes have when either they have the time to think, or a particular event occurs, and suddenly all the frustrations of the selling round come rushing to the surface. For Steve it was putting forward a selling idea to his sales manager, only to have it cast aside without even the satisfaction of discussion.

His short-lived anger soon sparked off a whole train of considerations about his inability to have any real influence upon company attitudes, the limited opportunities for personal advancement, the lack of scope for creative thinking. So, he had picked up the telephone there and then and called the number on the advertisement.

The agency, and subsequently the computer company concerned, were enthusiastic, even flattering about his achievements, and in no time at all he had been offered the job and accepted it.

Suddenly there was the challenge of a new situation and a new product. He had been carried along with the euphoria of being made to feel important, comfortable in the warmth of being wanted. Now he wondered why.

Everyone had been so nice when the word got out that he was leaving. He fully expected to be dismissed there and then, as is usually the practice with departing sales people, but they had asked him to stay on until Christmas.

They all seemed to be sorry he was leaving, all that is except Phil Brown, who was continually runner-up to him in all the sales competitions and had aspirations to take over his territory.

"Hey Steve, what you doing?" posure to free and abundant alcohol. "Not getting morose are you?"

Steve lowered his feet on to a carpet that for many days after would be the source of much resentment among the office cleaners.

"Why don't I get you another drink?" enthused the same voice, and Steve smiled his approval. "That's the first time I can remember the sales manager getting me a drink," he mused. "It must be the price!"

Bill wasn't a bad guy when you got to know him. Sometimes a bit hasty; occasionally intolerant, particularly when the pressure is on — and God knows that's often enough. As sales managers go he was reasonably successful but as vulnerable as the next.

"We never really got time to discuss that idea of yours, you know. I didn't get around to studying it properly until yesterday afternoon.

"It's really very good, and I hope you won't object to my putting it into effect at the next sales meeting despite your departure."

Steve was taken aback.

"But I thought you . . ." There didn't seem to be any point in revealing his misconception at this stage of developments, and he heard himself saying: "Sure. I hope you find it useful."

How could he have misunderstood? Maybe it was Bill's attitude at the time, maybe it was his own; certainly the communications between them had always left a lot to be desired.

And who was responsible for that? The modern trend is to emphasise the need for communication within the business operation. That in itself, however, is a philosophy that can ostensibly be satisfied with the occasional interdepartmental memo. Why can no one see that the need is for involvement by all people, at all levels, in pursuit of the end-user's needs?

"Actually, I'd better be going. I told Margaret I wouldn't stay too long. I'm overdue already." They both knew it was a lie, but Bill understood.

Steve had already packed his things, even that dreadful plastic tiger that some enthusiastic vice-president had given him the year before for achieving the highest sales in the country.

So, it was simply a matter of picking up his bag, shaking a few hands, pretending not to see just a hint of tears in his patient secretary's eyes, and casting a final look back at the desk that had witnessed so many glorious sales victories and some heroic failures.

He could still hear them singing by the time he had reached the bottom of the street.

"We wish you a merry Christmas and a happy new year."

A new job, a new company, a new product. He was to undergo the pain of starting all over again.

At least he had learned something, and certainly he had some growing to do.

*Alan Williams*

## PUZZLE ANSWER

THE search for the smallest such number can be drastically reduced by considering the fact that all numbers differ by a multiple of nine from the sum of their digits.

This leads quickly to the conclusions that: (a) since the required number and its treble differ by a multiple of nine from the same digit-sum, they must obviously differ by a multiple of nine from each other; and consequently (b) the two numbers must both be divisible by nine; and finally that both numbers must have a digit-sum divisible by nine.